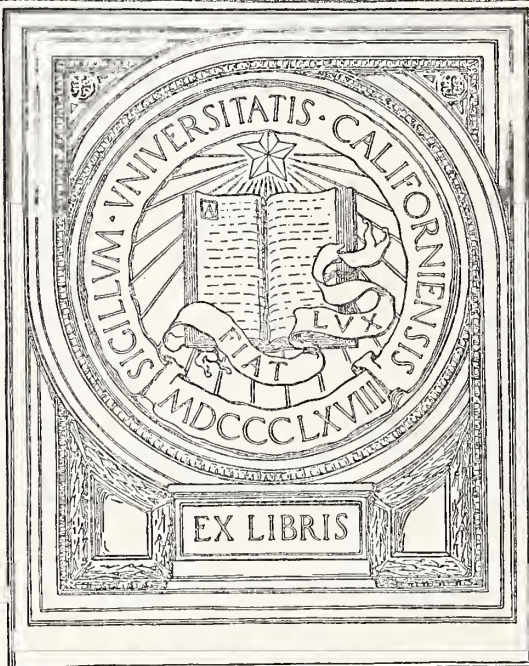


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Volume 18

Number 1

January, 1961

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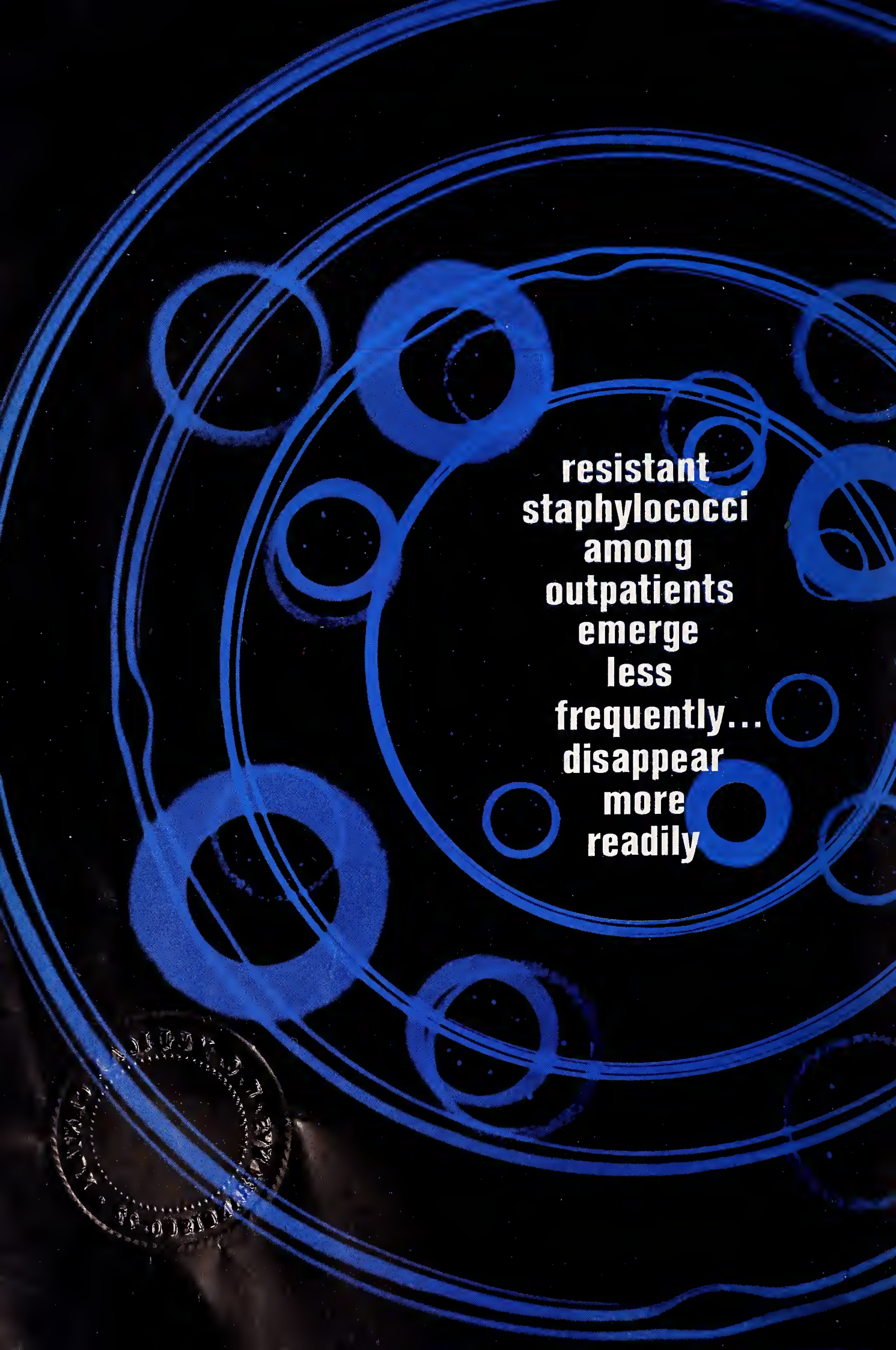
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References: (1) Bauer, A. W.; Perry, D. M., & Kirby, W. M. M.: *J.A.M.A.* 173:475, 1960. (2) Goslings, W. R. O., & Büchli, K.: *Arch. Int. Med.* 102:691, 1958. (3) Goodier, T. E. W., & Parry, W. R.: *Lancet* 1:356, 1959. (4) Fisher, M. W.: *Arch. Int. Med.* 105:413, 1960. (5) Petersdorf, R. G., et al.: *Arch. Int. Med.* 105:398, 1960. (6) Glas, W. W., in Symposium on Antibacterial Therapy, Michigan & Wayne County Acad. Gen. Pract., Detroit, September 12, 1959, p. 7. (7) Modarress, Y.; Ryan, R. J., & Francis, Sr. C. E.: *J. M. Soc. New Jersey* 57:168, 1960. (8) Rebhan, A. W., & Edwards, H. E.: *Canad. M. A. J.* 82:513, 1960.

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*Adapted from Bauer, Perry, & Kirby¹

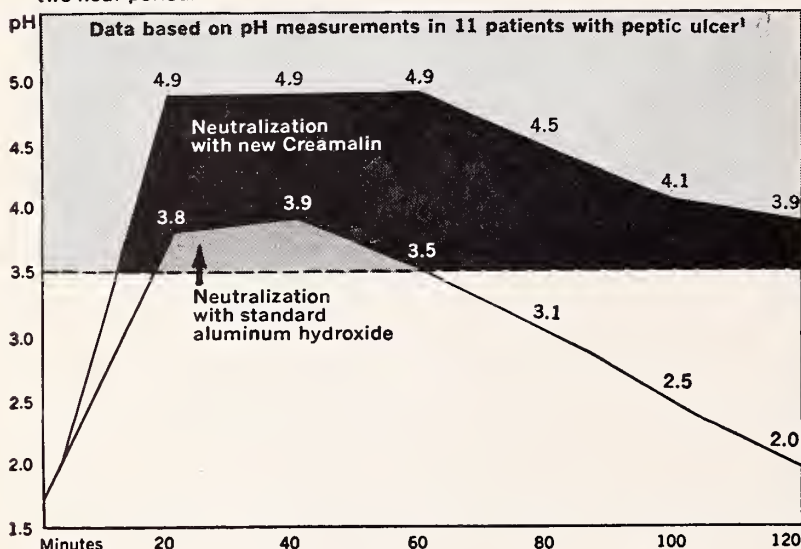
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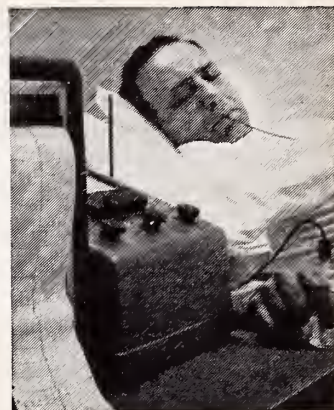
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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: J. Am. Pharm. A. (Scient. Ed.) 48:384, July, 1959.

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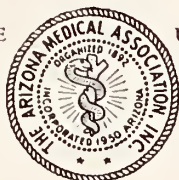
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MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

January, 1961



Vol. 18, No. 1

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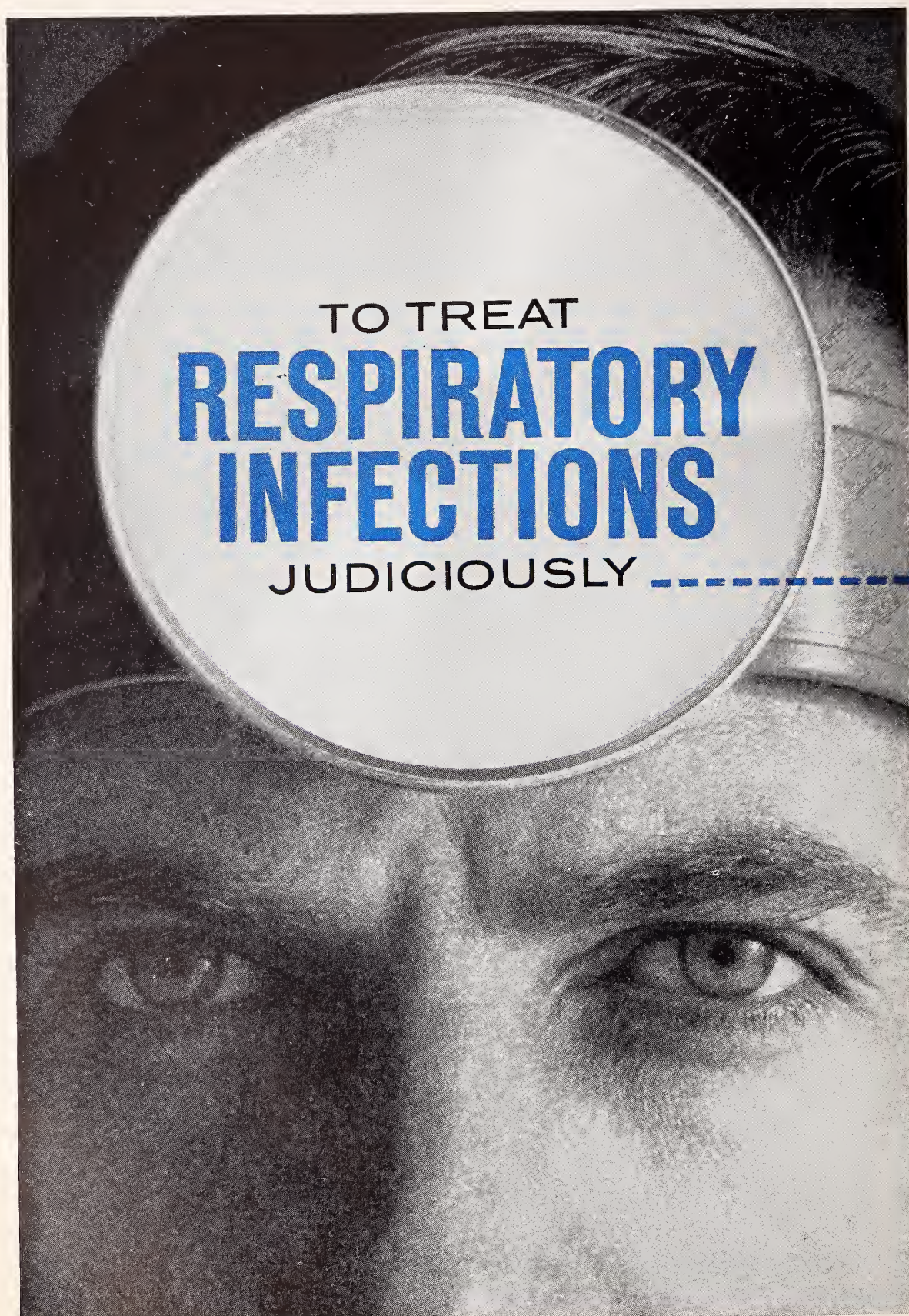
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**References available on request.*

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Arizona Medical Association Reports

Arizona Medicine

Vol. 18, No. 1



January, 1961

Board of Directors

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Sunday, October 23, 1960, Scottsdale, Arizona, convened at 10:15 A.M., Clarence E. Yount, Jr., M.D. (Vice-President), Chairman, presiding.

ROLL CALL

Present: Drs. Beaton, Lindsay E., President; Dudley, Jr., Arthur V., Dysterheft, Arnold H., Hamer, Jesse D., Hileman, Walter T., Jarrett, Paul B., Melick, Dermont W., Polson, Donald A., Reed, Wallace A., Running, E. Henry, Smith, Leslie B., President-elect; Steen, William B.; Tuveson, Leo L.; Yount, Jr., Clarence E., (Vice-President), Chairman.

Messrs. Boykin, Paul R., Assistant Executive Secretary; Carpenter Robert, Executive Secretary; Jacobson, Edward — Counsel.

BENEVOLENT AND LOAN FUND

Messrs. Duncan Newell and John McCarthy, representing the Trust Department of The Valley National Bank, were present, together with Mr. Edward Jacobson, Counsel of this Association, to present a proposed Trust Agreement suggested in the handling for the Association, its Student Loan activity now being conducted by and as a part of the Benevolent and Loan Fund Committee operation. Mr. Jacobson reviewed the contents and explained the provisions contained in the (a) "Declaration of Trust Creating and

Governing the Arizona Medical Association Benevolent and Loan Fund Trust", (b) "Loan Agreement," (c) "Form of Certification by the Association's Benevolent and Loan Fund Committee of Student Loan Granted," and (d) "Form of Request for Change in Terms." Considerable discussion ensued and the representatives present were subjected to detailed questioning.

Regarding the cost of operation, Mr. Newell stated that the annual rate is \$6.00 per \$1,000.00 market value incurred with the Trust Agreement; i.e. if the market value is established at \$50,000.00, the annual fee would be \$300.00; if \$15,000.00, the fee would be \$90.00, etc., with a minimum charge of \$100.00, exclusive of unusual expense which may develop in the process of collection of loans which, of course, would be an additional charge.

It was moved by Doctor Reed, seconded by Doctor Jarrett and others and unanimously carried that the Board accept the proposed trust of its Benevolent and Loan funds through The Valley National Bank for a trial period of one year and authorize execution of the necessary Trust Agreement(s).

CHAPTER 13 MEDICINE & SURGERY,
A.R.S. 1956

Counsel reviewed in detail his report on prog-

ress made to date in the study of possible amendments to Chapter 13 Medicine and Surgery (Act), A.R.S. 1956, which already has consumed considerable time. It was his opinion that to rewrite the entire Act will require considerably more time and research and is not possible of achievement in time for presentation during the forthcoming Legislative Session, taking into account his time-table. Question was raised as to whether there are some few emergency amendments desirable at this time which could rather simply be prepared for action in the Legislature this coming year.

Considerable discussion ensued. It was the general consensus that a piecemeal approach is not desirable and should be avoided if at all possible. On direct questioning, the Executive Secretary stated that at no time had he considered the need less than a complete rewrite of the entire statute. To do less would not be accomplishing the necessary and essential objective; recognizing, however, that the Board of Medical Examiners had expressed a desire to achieve certain immediate relief in portions giving it most concern, it was his opinion that the next step would be to have a joint meeting between members of the State Board and the Association to review the entire problem and establish a workable time schedule to achieve the objective. Many matters of medical policy must be determined and decisions arrived at before proceeding with the mechanics of preparing specific amendments.

It was moved by Doctor Reed, seconded by Doctor Steen and unanimously carried that the President be authorized to appoint a committee of this Association to meet with the Board of Medical Examiners for the purpose of giving further study to this matter, the committee to be given authority to determine whether or not preparation of amendments piecemeal are indicated and desirable at this time.

The President appointed: Doctors Jesse D. Hamer (Phoenix) to serve as chairman; Paul B. Jarrett (Phoenix), Wallace A. Reed (Phoenix) and William B. Steen (Tucson) to serve as members of this committee, with the President, Doctor Lindsay E. Beaton (Tucson) and President-elect Doctor Leslie B. Smith (Phoenix) likewise to serve as members ex-officio. A joint meeting with the Board of Medical Examiners is to be called at the earliest possible time.

ACTING SECRETARY

Due to the continuing illness of the Secretary, Lorel A. Stapley, M.D., the President recommended the appointment of the President-elect, Leslie B. Smith, M.D. to serve as Acting Secretary until such time as Doctor Stapley is able to resume his duties. Doctor Smith indicated willingness to accept such appointment.

It was moved by Doctor Beaton, seconded by Doctor Steen and unanimously carried that Doctor Leslie B. Smith, President-elect, be appointed Acting Secretary of this Association to serve until such time as Doctor Stapley is able and willing to resume his duties as Secretary (or until his term expires).

EXECUTIVE COMMITTEE MEETINGS REPORTS

*Meetings of June 26
and September 18, 1960*

Lindsay E. Beaton, M.D., President and Chairman of the Executive Committee, reported on matters coming before that Committee in meetings held June 26 and September 28, 1960, covering the following matters, a detailed report having been prepared and circulated among the members of this Board and authorized filed with the proceedings of this meeting:

Referred to the Medical Economics Committee for study and report:

(a) AMA-sponsored group annuity and disability program; (b) California-Western States Insurance Company group insurance plan; (c) American Academy of General Practice retirement program; (d) Simpson-Keogh Bill, with instruction to study ways of implementing such legislation in the practical interest of the doctor, should it ever be passed, and to study the "Kintner Plan"; and (e) ARMA House of Delegates' resolution adopted in 1960 referable to the establishment of a program of voluntary health and accident insurance for older citizens, with special regard to the development of non-cancellable health insurance policies.

Referred to the Professional Committee for study and report:

(a) AMA Conference on Pregnancy and Perinatal Morbidity; (b) ARMA House of Delegates' resolution adopted in 1960 offering help in the establishment of adult mental health clinics; (c) the matter of payments to Comstock Hospital in Tucson, where it is more practical to care for children with chronic diseases, by

Blue Cross-Blue Shield Plans; and (d) to seek information from other states as to how much help a Cancer Registry is, what safeguards against name revealing are afforded, so that this information may be used in influencing legislators previously opposed to the idea of a Cancer Registry, in order that the Association may determine the practicability of pushing cancer legislation registration again this coming year.

The Executive Committee determined to schedule a meeting with members of the Ministerial Association and the Arizona State Nurses Association to discuss problems of mutual interest.

Referred to the Professional Liaison Committee for study and report:

(a) AMA program materials on careers in medicine for high school students with instruction to initiate the careers program as soon as possible in both high schools and colleges; (b) Resolution of Maryland Society regarding cutting off care of all non-service-connected cases in VA hospitals, with special request that Dean's Committee of VA be contacted to see what the implementation of such a request might do to teaching in the country's medical schools; (c) AMA House of Delegates' resolution on the National Foundation; and (d) AMA House of Delegates' resolution referable to recruitment of medical representatives of the Arizona Education Association, with further instruction to the subcommittee on Careers to develop plans for "Career Nights" at both ASU and U. of A.

President directed to write an official letter seeking clarification of stand on the resolution made by the Governor's Conference in Montana and asking what plans will be made for implementation of the matching funds requirement of the Mills Bill.

Referred to the Articles of Incorporation and By-Laws Committee for study and report:

(a) The matter of consideration of need for the preparation of a by-laws change to provide for the appointment of acting officers in case of prolonged absence of regular officers as recently experienced in the office of Secretary.

Referred to the Public Relations Committee:

For implementation: (a) ARMA House of Delegates' resolution adopted in 1960 with instruction to devise a proper public educational program on federalized medical plans, prepare budget, and clear its final program with the Executive Committee; (b) AMA House of Dele-

gates' resolution recommending that physicians be more active in public affairs; (c) AMA House of Delegates' resolution re recruitment of medical students; (d) report of Chairman of subcommittee on Aging of the Professional Committee, for guidance, with the caution that the report of Emory University sociologists being so heavily stressed by AMA, be carefully considered in the light of adverse reactions reported in the September 2 issue of "Science," AMA to be contacted for possible rebuttal to the "Science" stand; and (e) directing maximum publicity in the program of student loans under the Benevolent and Loan Fund Committee.

Referred to the Legislative Committee for study and report:

The matter of Cancer Registry to explore the practicability of introducing for enactment by the 25th Legislature of Arizona a measure providing for a State-wide Cancer Registry.

Referred to the Benevolent and Loan Fund Committee for development:

A plan that will ensure an on-going program through procurement of contributions from doctors and non-medical sources, the fund currently nearing exhaustion.

Referred to the Scientific Assembly Committee:

(a) Instruction to begin planning for the Diamond Jubilee of the Association; and (b) to consider scheduling of annual meetings two or three years in advance to reserve dates and adequate places.

Referred to the Industrial Relations Committee for study and report:

Complaints in the matter of Industrial Commission interference with physician care of ICA clients, and in addition, the President and Counsel are to seek an audience with the Industrial Commissioners.

Matters disposed of, recorded for reference:

1. Authorized telegrams to U. S. Representatives and Senators regarding Association stand against Forand-type legislation, in favor of the Mills Bill, except for the section approving inclusion of doctors under Social Security;

2. Approved poison control information file cards be made available to osteopathic hospitals;

3. Determined Diabetes Detection Drives should remain with component societies;

4. Noted that the state law, if enforced, will allow the picking-up and detention of men discharged, although still active, from VA hospitals for disciplinary reasons;

5. Endorsed the stand of Arizona State Board of Pharmacy that no prescription more than one year old be refilled;

6. Instructed President not to accept invitation to October Osteopathic National Meeting scheduled for Phoenix;

7. Agreed not to approve any official Association support of any candidates for any office in the November national election;

8. Approved invitation to Board meetings of major committee chairmen to discuss matters on which special information required;

9. Approved attempt to gain audience with Government following the election in an endeavor to obtain better representation of Medical Association opinion in the appointment of physicians to commissions, etc. having to do with public health;

10. Approved meeting with President of Women's Auxiliary;

11. Approved organizational chart and framing, to be hung in the Central office; and

12. Approved Accounting procedures: (a) Marvin Henry, CPA, Phoenix, hired as accountant; (b) agreed to preparation of monthly financial statements by Central Office; (c) determined books to be kept and maintained in Central Office; (d) approved two-signature system for voucher check payments; (e) authorized accounts of Association be split so as to take full advantage of federal insurance; (f) authorized Association funds be placed in Phoenix (Park Central Branch of Valley National Bank) for convenience of auditor and Central Office; (g) Treasurer henceforth to act as financial officer and advisor of the Association, no longer required to be its bookkeeper; and (h) approved purchase of APECO copying equipment.

Memberships

Determined county societies shall make decision regarding transfer of 70-year members no longer in active practice to Associate membership to assure accuracy in roster of Active members in computing membership to AMA, Central Office to make query of this group annually to determine Active or Inactive status.

Approved attendance of President, President-elect, AMA Delegate and Executive Secretary to Salt Lake City Conference July 29 and 30, 1960, at Association expense.

Instructed Counsel and Executive Secretary to

analyze possibility of rewriting the Medical Practice Act.

Authorized execution of Medicare supplemental agreements of (a) negotiated claim rate, (b) limitation on invoicing, and (c) modification of portions of Medicare Manual and Schedule Allowances on recommendation of Fiscal Administrator.

Approved action of Editor-in-Chief, President and Executive Secretary, on advice of Counsel, in disposing of all claims of the former publisher of Arizona Medicine, J. N. McMeekin, for a sum of \$480.50.

Authorized additional 1960 annual meeting expenditure payments of (a) \$70.00 to Arizona Pediatric Society to cover luncheon expenses not met by guests; (b) \$30.00 to Golf Chairman for unexpected expenses; and (c) \$30.00 to Safari Hotel for coffee consumed during "coffee hour" — reimbursed by Arizona Drug Travellers in August, 1960.

Resolved that only such attendance as deemed essential to meetings scheduled by AMA et al., will be approved at Association expense; however, effort to be made to find a representative who may be in attendance for personal reasons and can simultaneously act as the Association's envoy.

Noted reduction in printing costs of Arizona Medicine by about \$2,000 per year, the result of economies effected.

It was moved by Doctor Beaton, seconded by Doctor Running and unanimously carried that the report covering the meetings of June 26 and September 18, 1960 of the Executive Committee of the Board of Directors be accepted.

Meeting of October 22, 1960

Doctor Beaton reported the results of the meeting held yesterday, October 22, 1960, included the following items:

A meeting was held with the Arizona Ministerial Association in the matter of repeal of that portion of Title 25, Marital and Domestic Act, Chapter I, Section 25-103.01 through 103-10 A.R.S. 1957, dealing with examination and certification requiring a standard serological test. It was unanimously agreed at the end of this meeting that it would be impractical to try to change the law now because any change would be unacceptable to the public, but that, rather, we would appoint two ad hoc committees which would get together in a joint effort in public relations to point out the facts about

serological tests; point out to the public that a false positive may occur and that therefore all persons in Arizona intending to get married should have an examination by their physician 30 days ahead of time. The ministers felt that this was a proper thing to do and they thought that it would further save the pathologists from any allegation that they are sponsoring a questionable test procedure just to make money. We are going to ask the members of the Jewry and members of the Catholic priesthood to such a meeting. This proved to be a very helpful meeting because everybody ended up with good feelings about it and we felt that it was a useful solution to the problem that was raised by the Professional Committee's motion of last year; so the Executive Committee was therefore advised that such an ad hoc committee be appointed.

It was moved by Doctor Jarrett, seconded by Doctor Steen and unanimously carried that the membership of the ad hoc committee representing this Association to meet with a similar committee of the Ministerial Association comprising Derrill B. Manley, M.D., (Phoenix) Chairman; Philip G. Derickson, M.D. (Tucson), James D. Barger, M.D. (Phoenix), Leo L. Tuveson, M.D. (Phoenix) — recommended appointed by the President, be approved.

Meeting with representatives of the Arizona State Nurses Association, Inc. in discussion of matters of mutual interest, resulted in agreement that our Executive Secretaries would try to maintain better liaison; that liaison would be expected between specific committees of the Nurses Association and ours, such as the Legislative Committee, and so on; and that our Professional Liaison Committee would continue to be active in its subcommittee on Nursing, and that they (the Nurses) would appoint an ad hoc committee of their own to consult with it when there arose any cause for exploration of a problem.

Effective October 1, 1960 the Active (Voting) membership of ARMA totalled 981, resulting in an allocation of 67 Delegates and Alternates to its House of Delegates, two each for each component county medical society, with the exception of Maricopa, with an Active Membership of 553, resulting in allocation of 29 Delegates and Alternates, and Pima, with an Active membership of 262, resulting in the allocation of 14 Delegates and Alternates, in accordance with the by-laws. As to the composite of the Board

of Directors, such total Active voting membership will provide for the allocation of 22 resulting in an increase of one, for a total of six Central District Directors comprising Maricopa Society, and an increase of one for a total of three Southern Directors, comprising Pima Society.

The Treasurer's report of the financial status of this Association on a semi-annual fiscal basis to September 30, 1960, prepared by the appointed accountant (without certified audit), reviewed. Again, it was determined that monthly financial statements will be provided the Executive Committee, a semi-annual auditor's report supplied the Board of Directors, and a certified annual audit provided both the Board of Directors and House of Delegates at the close of the fiscal year. Auditor's recommendations: (a) consider use of complete budget for ensuing year, including both revenues and expenditures; (b) consider application of an amount based upon a practical cost computation to be borne by the Publishing Committee each month representing an additional cost for publication of the Journal, thereby reflecting a true cost; and (c) assignment to one particular savings account, interest earned to date representing the "benevolence" portion of the Benevolent and Loan Fund operation.

It was moved by Doctor Hileman, seconded by Doctor Dysterheft and unanimously carried that the recommendations of the auditor be approved.

It was further requested that study be given the desirability of continuing the accounting operations of this Association on a fiscal year basis versus a calendar year basis.

Approved establishment of the following monthly operational costs associated with the Journal: (a) salaries, \$200.00; (b) telephone, \$26.20; (c) rental of office space, \$100.00; (d) miscellaneous supplies, \$10.00; and (e) equipment depreciation, \$7.00.

Agreed to the establishment of a "deferred income" account or "reserve" for anticipated expenditures resulting in a true picture of accounting associate with annual meeting operations.

Approved payment of \$9,697.50 to AMEF representing allocated portion of dues collections for the period ending September 30, 1960; and establishing hereafter the latter date (September 30) as the annual date for computing such contributions.

Authorized attendance of AMA Delegate and Executive Secretary to special meeting called by AMA to be held in Washington, D. C. November 27, 1960, just prior to the opening of the Clinical Session, for the purpose of bringing state medical association representatives to date on national developments pertaining to health care of the indigent and medical indigent aged (those over 65 years of age).

Approved objectives of establishment of a joint council to improve the health care of the aged sponsored by ADA, AHA, and AMA and the American Nursing Home Association, referring the matter to the subcommittee on Aging of the Professional Committee for implementation. Communications from the Arizona Dental Association and the Arizona Association of Nursing Homes were received, expressing their willingness to cooperate in furtherance of this effort.

Recommended appointments by the State Chairman of the Governor's Committee on Aging for the White House Conference on Aging, of Jesse D. Hamer, M.D. of Phoenix and Clarence L. Robbins, M.D. of Tucson, as Delegates to be appointed by Governor Fannin to the White House Conference on Aging, January 9, 1961, in Washington, D. C., the Delegates to be responsible for part or all of their expenses. Referred to the Board of Directors without recommendation, however expressing satisfaction in the choice of the two Delegates mentioned.

Recommended calling a joint conference with the Arizona Pharmaceutical Association referable to dispensation of unlabelled drugs.

The AMEF award of merit and citation to Herbert D. Welsh, M.D., in recognition of his work on behalf of medical education, to be presented to the doctor at the next regular meeting of the Pima County Medical Society. It was suggested that such financial contributions, the outgrowth of the "Arizona Plan" (contributions from pharmacists, etc. to AMEF rather than donation of Christmas presents to physicians) might in the future be considered for contributions to the Association's own Benevolent and Loan Fund Committee, augmenting monies to be made available to assist worthy Arizona medical students in furthering a medical career.

Referred back to the Industrial Relations Committee for direct referral to Maricopa County Medical Society were charges in the case of V. Eugene Frazier, M.D. of Mesa, Howard C. Lawrence, M.D. of Phoenix, and Rexford A.

Peterson, M.D. of Phoenix.

Denied reinstatement of the membership of Ruth Alice Johnson, M.D. (Maricopa Society) as an Associate member, account: current out-of-state residence and lack of by-laws provision to cover such situation.

Granted Active membership status, dues exempt, effective January 1, 1961, account: attaining the age of 70 years, for Nathan Schneck, M.D. and Dan L. Mahoney, M.D., both of Tucson (Pima Society).

Referred to Board of Directors without recommendation, Tucson Obstetrical and Gynecological Society resolution, with endorsement of Pima County Medical Society, referable to an amendment of Section 13-213, A.R.S., in the matter of giving of contraceptive advice, proposing deletion of the words: "or for prevention of conception." It was indicated that similar action had been taken by the Maricopa County Society Board of Directors.

It was moved by Doctor Jarrett, seconded by Doctor Reed and unanimously carried that such action be approved and the matter referred to the Legislative Committee with the recommendation that they devolve some plan of doing away with this piece of legislation.

Referred to Irving L. Folberg, M.D. of Sierra Vista, Arizona, report of the AMA Delegate pertaining to "osteopathy" in the matter of practice of M.D.s in an osteopathic hospital.

Referred to Professional Committee for investigation and report, operations of the North Western Clinical Laboratory of Phoenix offering clinical laboratory services to physicians and soliciting participation on a subscription basis.

Referred to the Public Relations Committee for review and recommendation, the matter of selection of qualified participants among Association members, associate with the proposed "community service award for physicians" to be offered by A. H. Robins Company.

The subcommittee on Public Health and Schools of the Professional Liaison Committee reports no special need for legislation during the forthcoming Legislative Session in the matter of "raw milk"; suggested amendment to legislation pertaining to birth control, especially as pertains to making available information dealing with contraceptive advice; and minor changes to be promulgated by the State Department of Public Health amending the present health code.

No action taken regarding financial contribu-

tion to the 66th National Conference on Government, to be held in Phoenix November 13-16, 1960.

Referred to the Industrial Relations Committee for investigation and report, the matter dealing with reporting and establishing of the percent loss of vision sustained by industrial patients, especially when only one eye is involved.

It was moved by Doctor Beaton, seconded by Doctor Running and unanimously carried that the report covering the meeting of October 22, 1960 of the Executive Committee of the Board of Directors be accepted.

ATOMIC ENERGY COMMITTEE OF ARIZONA

Doctor Beaton reported that the Governor had appointed R. Lee Foster, M.D. of Phoenix, a member of his Atomic Energy Committee of Arizona.

EXECUTIVE COMMITTEE RECOMMENDATIONS REFERRED TO THE BOARD OF DIRECTORS

Central Office

It was moved by Doctor Polson, seconded by Doctor Dudley and unanimously carried that the President, President-elect, Vice-President, Secretary and Treasurer be designated alternate officers to be authorized to sign voucher checks of the Association in the instance of the unavailability, because of illness or otherwise, of the Treasurer and/or Secretary, to assure continuity of operations.

It was moved by Doctor Dudley, seconded by Doctor Tuveson and unanimously carried that the General Fund checking account of this Association be transferred from the Campbell-Grant Branch of the Valley National Bank, Tucson, to the Park Central Branch of the Valley National Bank in Phoenix.

It was moved by Doctor Polson, seconded by Doctor Hileman and unanimously carried that the following additional sums be appropriated for expenditure during the remaining fiscal year, associate with the budget of appropriations for the fiscal year 1960-61; telephone and telegraph, \$600.00; supplies, \$1,000.00; postage, \$500.00; Board of Directors, \$300.00; miscellaneous committees, \$600.00; furniture and fixtures, \$1300.00 (including authorized purchase of new APECO equipment and adjustment in typewriter equipment replacement).

Further consideration is to be given the need

for an additional appropriation in the instance of the Public Relations Committee if, as and when a program is developed and approved by the Board of Directors.

Deferred action in the transfer from Active membership to Associate membership, account: retirement, dues exempt, in the instances of Henry Leroy Franklin, M.D. and Joseph Madison Greer, M.D. (Maricopa County Medical Society) to determine their individual wishes and possible effect upon their group insurance for accident and sickness should they be participants.

Professional Committee

Ratified mail vote of Board members, nineteen approving, one not voting (account illness), statement of position of this Association dealing with medical care of the aged in accord with the position of AMA expressed at its annual meeting June last, which is to be included in the report to the Governor being prepared by the Governor's Committee on Aging.

It was moved by Doctor Reed, seconded by Doctor Tuveson and unanimously carried that the expenses of the Delegates, Doctors Hamer and Robbins, to the White House Conference on Aging, to be held in Washington, D. C. January 9-13, 1961, be approved, provided that they are nominated by the Governor and finally approved by the Executive Committee of the Board of Directors.

It was moved by Doctor Tuveson, seconded by Doctor Reed and unanimously carried that the Arizona Division of the American Cancer Society be privileged to use the name of this Association as a cooperating agency associate with its Ninth Annual Cancer Seminar to be held in Tucson, Arizona, at the Tidelands Motor Inn, January 12 through 14, 1961.

It was moved by Doctor Hileman, seconded by Doctor Steen and unanimously carried that the matter of approval and concurrence in the Duval County (Florida) Medical Society's findings contained in its resolution adopted June 7, 1960, opposing certain recommendations of the Joint Commission on Accreditation of Hospitals, be tabled.

It was moved by Doctor Polson, seconded by Doctor Tuveson and unanimously carried that there be established a State-wide Maternal and Infant Mortality Committee to study each death within Arizona, the statistics to be promulgated by the Arizona State Department of Health,

analysis to be made through the subcommittee on Maternal and Child Health with the assistance of the State Pediatric and Obstetrics Societies.

It was moved by Doctor Dudley, seconded by Doctor Tuveson and unanimously carried that the subcommittee on Mental Health of the Professional Committee of the Association be directed to act in a consulting capacity to those professional and lay groups seeking advice in the selection of qualified experts as speakers and/or instructors in the field of hypnosis, when requested.

Professional Liaison Committee

It was moved by Doctor Singer, seconded by Doctor Hileman and unanimously carried that the resignation of Chester G. Bennett, M.D. (of Phoenix) as a member of the Professional Liaison Committee for the term 1960-63 be accepted; and that Albert G. Wagner, M.D. (of Phoenix), on recommendation of the President, be appointed a member of the Professional Liaison Committee to fill the unexpired term, he to be assigned the chairmanship of the subcommittee on Careers and Arizona AMEF.

It was moved by Doctor Beaton, seconded by Doctor Hileman and unanimously carried that the Arizona State Board of Health be informed that the subcommittee on Public Health and Schools of the Professional Liaison Committee stands ready and willing to volunteer its services for screening and interviewing candidates in the selection of a Commissioner of the Arizona State Department of Health.

Approved the form letter of inquiry to be circulated among the members of the Association, with questionnaire response card, seeking participants in the development of a school health consultant program, as approved for activation by the ARMA House of Delegates in May of 1960.

It was moved by Doctor Dysterheft, seconded by Doctor Running and unanimously carried that the matter of promulgation of a list of four names of members of this Association be submitted to the Governor as nominees from among which he will appoint one to serve as a member of the Advisory Survey and Construction Council for a term of four years, effective January first next, to fill the anticipated vacancy, which assignment is currently filled by William B. Steen, M.D. of Tucson, be deferred until the next meeting of this Board.

No action indicated in report received from AMA reiterating its support of the Blue Shield concept (Resolution No. 42, 1959 Clinical Session).

Public Relations Committee

It was moved by Doctor Steen, seconded by Doctor Dudley and unanimously carried that a sum of \$100.00 be authorized paid to the National Society for Medical Research as a contribution of this Association toward its activity of protection of research institutions against sabotage by such groups as the antivivisectionists and a second area of creative development as represented by the National Conference on the Legal Environment of Medical Science.

OTHER BUSINESS

Arizona Medical School Study

Doctor Beaton reported on a recent meeting of the Arizona Medical School Study conducted by Joseph F. Volker, D.D.S., Director, to which members of the Medical School Committee of this Association were invited.

U. of A. Distinguished Service Awards

Doctor Beaton reported that Dermont W. Melick, M.D. and Samuel Wick, M.D. were the recipients of Distinguished Service Awards by the University of Arizona during its 75th Anniversary for extraordinary services rendered (Doctor Melick for service to the State; and Doctor Wick received it for his service in upgrading the Arizona State Hospital). The citations were very well done and will be published in Arizona Medicine, together with suitable photographs.

2% Sales Tax On Drugs

Referred by the Maricopa County Medical Society for consideration was a report setting forth certain facts concerning the 2% sales tax on drugs currently imposed, suggesting as a public relations project, that medicine spearhead a drive to repeal such taxation.

Doctor Beaton suggested that the Board of Directors might go on record as approving this stand of Maricopa County Medical Society and offering the cooperation of our Legislative Committee and Counsel, and the cooperation of the Woman's Auxiliary, in support of the repeal of this portion of the 2% sales tax imposed upon medicine.

The Board determined to approve Maricopa County Society's stand and offered the coopera-

tion of our Legislative Committee and legal counsel; and directed that our Auxiliary be informed that we support this matter of repealing the 2% sales tax on drugs and likewise urge its support.

Annual Meeting, 1961, Report

Doctor Smith as Chairman of the Scientific Assembly Committee reported on progress being made in the development of the Scientific program for the 1961 annual meeting. He stated that we have obtained the maximum number of speakers needed — eight — consisting of Doctor John H. Mulholland, New York University, surgeon; Doctor Evan Calkins, Massachusetts General Hospital, dermatologist; Doctor Herb Abrams, from Stanford, who is a heart research man; Doctor H. Corwin Hinshaw, whom you all know, chest diseases; Doctor Mahlon Delp of the Department of Medicine, Kansas; Doctor John W. Rebuck from the Ford Hospital,

hematology; Doctor Victor A. Drill who is the head research man for Scarle & Company and deals with the hormone control of kidney functions, etc.; and Doctor Robert T. Manning from the Research Department, University of Kansas.

It was moved by Doctor Tuveson, seconded by Doctor Melick and unanimously carried, on recommendation of the Chairman of the Scientific Assembly Committee: that allied groups may be invited to attend the annual meeting banquet, to include possibly official representatives of the pharmaceutical, dental, registered nurses and practical nurses associations, be approved.

THE MEETING ADJOURNED AT 3:55 P.M.

Loel A. Stapley, M.D.

Secretary

By Leslie B. Smith, M.D., President-elect
Acting Secretary

Since 1946, annual admissions in all hospitals have increased over 50 per cent; the number of employees has increased more than 75 per cent; and total expenditures have increased from just under \$2 billion to more than \$7 billion.

(American Hospital Association)

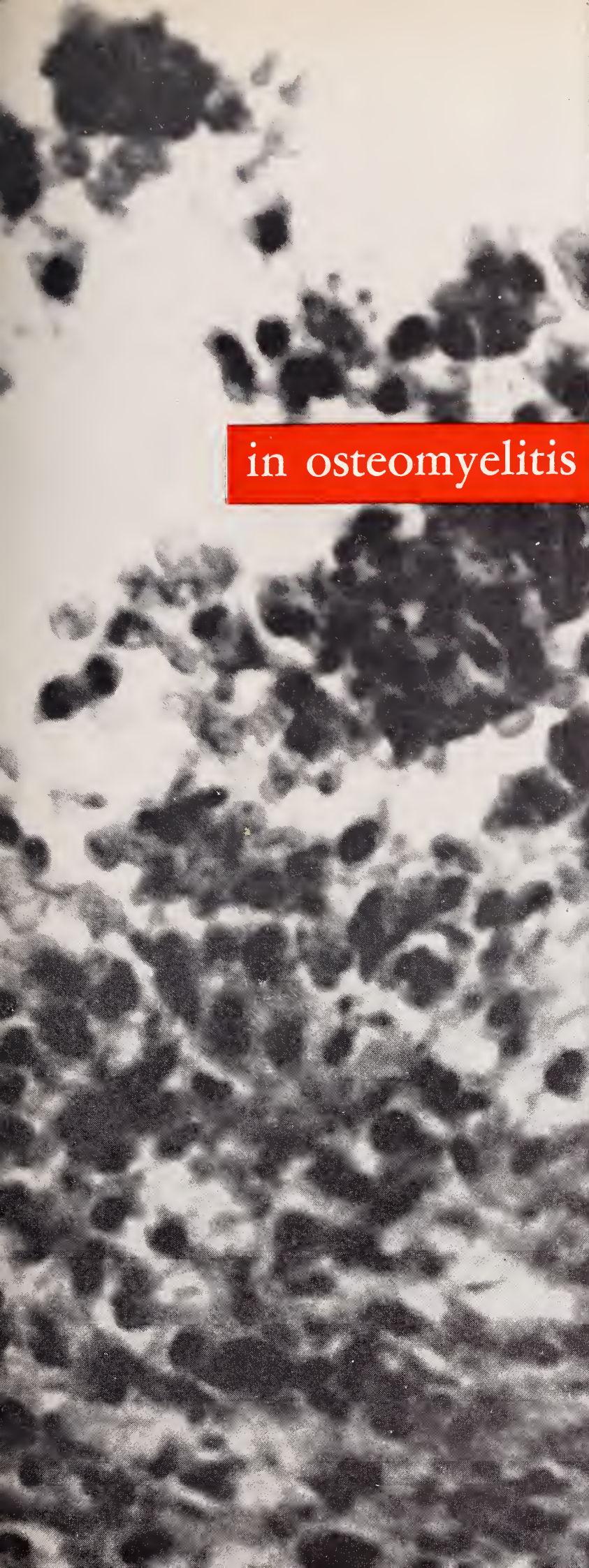


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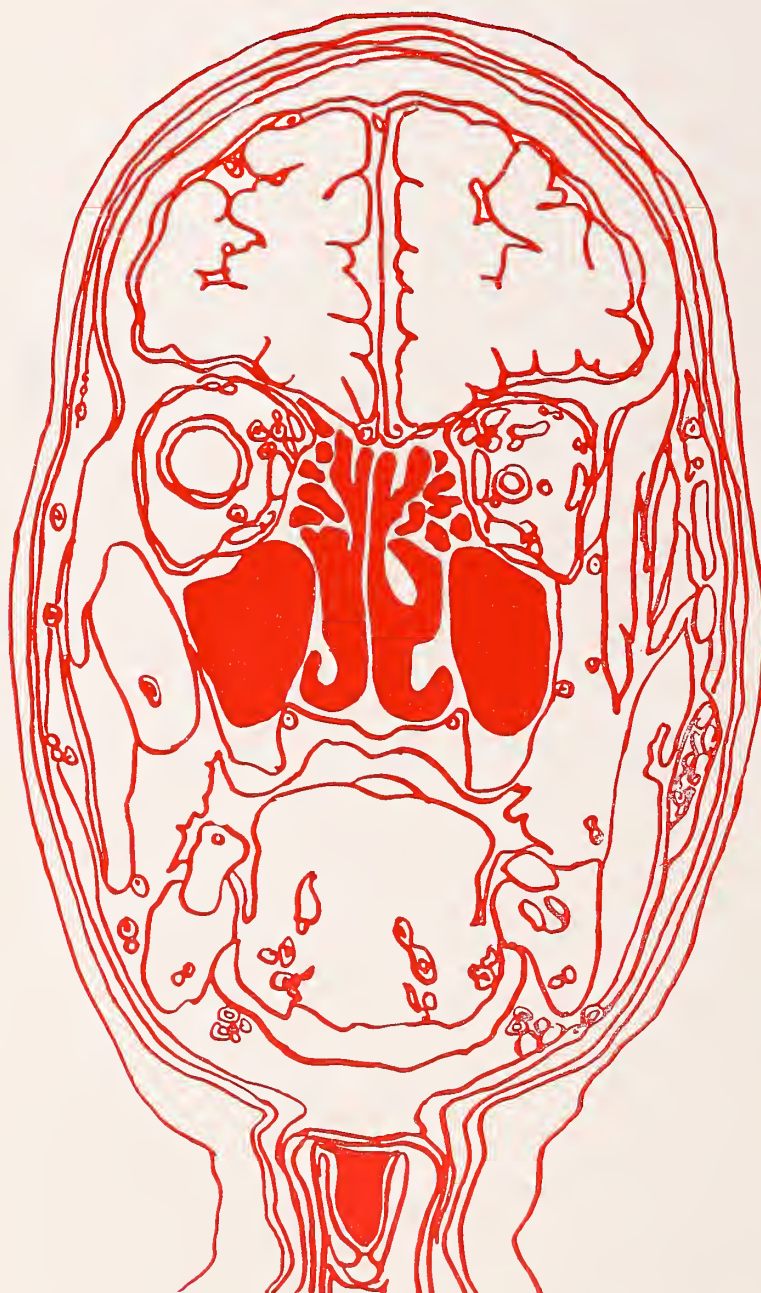
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Trancoprin is recommended for more comprehensive control of the pain complex (pain → tension → spasm) in those disorders in which tension and spasm are complicating factors, such as: headaches, including tension headaches / premenstrual tension and dysmenorrhea / low back pain, sciatica, lumbago / musculoskeletal pain associated with strains or sprains, myositis, fibrositis, bursitis, trauma, disc syndrome and myalgia / arthritis (rheumatoid or hypertrophic) / torticollis / neuralgia.

Dosage

The usual adult dosage is 2 Trancoprin tablets three or four times daily. The dosage for children from 5 to 12 years of age is 1 tablet three or four times daily. Trancoprin is so well tolerated that it may be taken on an empty stomach for quickest effect. The relief of symptoms is apparent in from fifteen to thirty minutes after administration and may last up to six hours or longer.

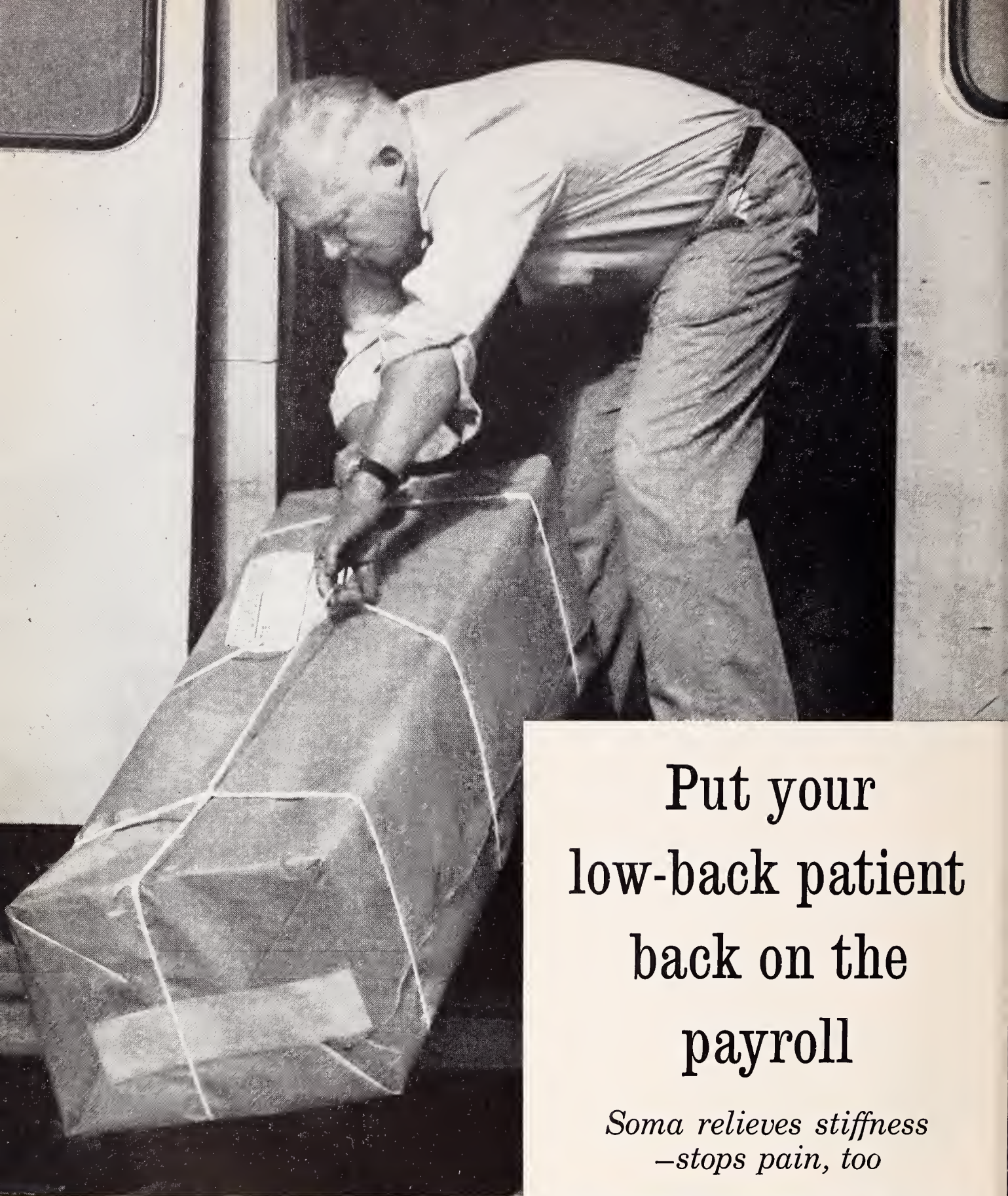
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Left Atrial Myxoma*

Meyer Markovitz, M.D.

and

Samuel R. Joseph, M.D.

Phoenix, Arizona

A patient with left atrial myxoma diagnosed ante-mortem is reported. When present, the findings of changing signs and symptoms with change in position, and dyspnea but not orthopnea, is highly suggestive of an unusual disease, i.e., atrial myxoma.

Angiocardiography is the best diagnostic procedure for myxoma.

When myxoma is suspected, exploration and actual removal of the tumor is best accomplished by use of the open heart surgical technique.

MYXOMA of the atrium has been a post-mortem diagnosis until very recently. With the advent of open heart surgery making these tumors amenable to surgical extirpation there has been an upsurge of interest. As recently as June 1957 only 13 instances were found of the diagnosis of atrial myxoma during life. Eight were actually diagnosed and five others were found at operation for "mitral stenosis."⁽⁴⁾ The following is a presentation of a patient with left atrial myxoma diagnosed ante-mortem.

A 46-year-old white male, was seen after the sudden onset of right hemiparesis. On the day of hospitalization, as he bent over to lift a box, he suddenly felt dazed, could not speak, and could not stand or use his right hand. Aside from the neurological findings, the physical examination revealed a palpable systolic thrill at the apex, and apical systolic and diastolic murmurs.

The pulse rate was 80 with a regular rhythm, and the blood pressure was 118/70; the heart was not enlarged; the lungs were clear; the liver and spleen were not felt. The past history was significant in that this patient had been followed for a period of eight years and no murmur had ever been heard. There was no history of rheumatic disease. There was an episode of bronchial asthma 11 years previously. He was told that there was a heart attack with the asthma attack, however, he was only in the hospital a week and was then told there was nothing wrong with his heart. He had mild epigastric distress off and on for about five years.

His course in the hospital was one of gradual improvement in the right hemiparesis and motor aphasia and a progressive worsening of his cardiac status. At first, the diastolic murmur at the apex was rumbling in character and the first heart tone was loud and snapping with a presystolic accentuation. At various times, a loud api-

*Read at the Regional Meeting, American College of Physicians, Tucson, Arizona, December 12, 1959.

cal systolic murmur was also heard. An opening snap was heard by examiners. He felt much better lying down at a 25 degree angle or less rather than sitting upright. A chest x-ray showed development of an effusion in the small fissure on the right and later the heart appeared enlarged. The x-rays were puzzling in that on the first set the concavity produced by the barium-filled esophagus was on the left side. The second film showed the concavity on the right side. It was later determined that the first films were taken with the patient upright, and the second films, because of his illness, were taken in the supine position. He had two episodes in the hospital, noted by the nurses, when he suddenly became very short of breath, pulseless, and syncope ensued. He quickly recovered from both of these episodes.

A thoracotomy was performed two weeks after his admission to the hospital. Nothing was found in the mediastinum and the pericardial sac was also clear. A diastolic thrill could be felt in the region of the AV groove, and the heart action was noted to be extremely forceful. The pressure however was only 100 mm of Hg. systolic. The operator went ahead with exploration of the left atrium. On initial examination, he felt a soft mass beneath the aortic leaflet, but this disappeared and then later in the procedure a stalk-like structure could be felt arising from the deep posterior area of the left atrium. At this point, an attempt was made to palpate the pulses in the legs. When they were not found, a saddle embolus was suspected. An embolectomy was done at the aortic bifurcation and a grape-like mass was removed. Another similar embolus was removed from the subclavian artery, and another from the left brachial artery. At the completion of the intracardiac exploration, there was immediate improvement in the quality of the heart beat and the thrill which was palpated originally had disappeared. At the time the patient was transferred to the cart to return to his room, spontaneous respiration ceased. There was no change in the heart rate or blood pressure. He was placed in a respirator, but expired less than 24 hours later. The anatomical findings were myxoma of the left atrium, with a stump still present attached to the limbus of the foramen ovale; embolization of the right iliac artery; left subclavian artery; and left internal carotid artery with extension into the left middle cerebral ar-

tery. There were multiple infarctions of the kidneys, spleen, and heart, and collapse and congestion of the lungs.

DISCUSSION

Pritchard,(13) in a review of cardiac tumors up to 1951, described approximately 126 cases of atrial myxoma. At that time he stated that "tumors of the heart are rarely diagnosed before autopsy, largely because there is little knowledge of their natural history." "Surgical treatment of these neoplasms is virtually unheard of, and the present state of diagnosis is far behind the therapeutic possibilities." Metastatic tumors of the heart occur with approximately 20 to 40 times the frequency of primary growths and were found in 3.9 per cent of all cancers studied.(13) The primary tumors of the heart include myxoma, carcinoma, rhabdomyoma, angioma, fibroma, and hamartoma; with myxomas constituting about 50 per cent of all primary cardiac tumors. Approximately three-fourths of those reported have occurred in the left atrium. McAllen,(8) in a review of 95 cases up to 1950, found that 77 occurred in the left auricle. The proportion of right atrial myxomas is greater than 25 per cent in recent reports, possibly due to the fact that a number of patients were found at cardiac catheterization. Almost all are attached to or overlie the fossa ovalis or its rim and are usually polypoid in nature.

Pritchard(13) considers the myxoma a true neoplasm. There are, however, still some adherents to the view that these masses are thrombi.(14 & 1). In one instance, tumor removed at operation was described by a pathologist as a "chicken fat clot".(1) More recently, a patient had a multicentric myxoma with tentacles attached to the limbus of the foramen ovale on the left, and a similar tumor growing from a cleft of the imperfect closure of the foramen on the right. In another instance the tumor mass had a complete covering of endothelial cells and cysts at the base.(2) These findings are not seen in thrombi. In any case, the pathologic picture of myxoma, whether true neoplasm or thrombus, is a well-recognized entity.

The natural history of these tumors is unknown although it would seem that most of them are of short duration. However, one patient is reported as having a murmur for 30 years, with

mitral stenosis being diagnosed for 11 years. After open heart surgery was performed and the myxoma was removed, no murmur was heard. (1) In another patient, a history of heart murmur of 43 years duration is reported, with the patient dying of other causes and the tumor found post-mortem. (17) MacGreger and Cullen (19) mention a report from India of a small myxoma found in the atrium of a stillborn infant.

The most common age of death due to myxoma is 40 to 60 years, however, the age range reported is from 4 to 83 years. In the past it was reported that females are involved three times as commonly as males. However, recent reports show a more equal sex incidence.

Of the 30 patients operated upon from 1951 through 1958, (4) the first survival was in 1955 with only a partial excision of the tumor being accomplished. Hypothermia was tried in six cases, five survived but three had complicating ventricular fibrillation. Nine patients were operated upon by means of the cardiopulmonary bypass technique and eight survived. Since in the 15 cases attempted by the closed technique, there are only two survivors, it is apparent that the cardiopulmonary bypass or hypothermia technique, preferably cardiopulmonary bypass, should be used in all such patients. The patient reported here, and a near duplicate recently reported by Buzze, (3) further show the danger of embolization and death due to attempted exploration of the left atrium. If atrial myxoma is suspected, the open heart technique should be used.

Diagnostic features of myxoma of the heart, whether left or right, may be defined under three headings: (1) (1) Cavitory obliteration, (2) occlusion of the valve orifice, and (3) arterial embolism. Cavitory obliteration causes dyspnea, arrhythmias, cardiomegaly, and congestive failure, which is characteristically rapid and progressive. These findings have led to the mistaken diagnosis of constrictive pericarditis or myocarditis. It has also been pointed out that although these patients are dyspneic, they sometimes are not orthopneic. Lying flat, or at a small angle, may lessen their dyspnea.

Occlusion of the valve orifice must be intermittent in order for life to continue, and leads

to murmurs, syncopal episodes, and episodes of paroxysmal dyspnea. Change of the murmur with position change has been stressed. However, in one review (10) this change of the murmur with change in position was found in only seven of 30 patients. In 20 patients reported between 1951 and 1954 (5) a change in the signs and symptoms with change in body position was reported in only two instances. The murmur is commonly apical, diastolic, and rumbling in character; but systolic murmurs are also heard. This one physical finding leads to the greatest difficulty in diagnosis as most patients are mistakenly considered to have rheumatic heart disease. The presence or absence of a history of rheumatic fever is of little aid in diagnosis. Patients with a history of rheumatic fever have had an atrial myxoma and it is well known that approximately half of the patients with rheumatic heart disease do not give a clear-cut history of rheumatic fever.

An opening snap has been reported in a patient with left atrial myxoma in whom, at post-mortem, the mitral valve leaflets were found to be entirely normal. (1) An opening snap was heard in this patient and at the time was considered to be a factor against the diagnosis of myxoma. It seems apparent that thickened mitral leaflets are not essential in the production of an opening snap. Arterial embolism has been a common finding and has led to a mistaken diagnosis of subacute bacterial endocarditis. Embolism may be the presenting feature, as it was in this patient, and may not be immediately fatal. (11) A combination of left atrial enlargement on x-ray, a mitral diastolic rumbling murmur, and embolic phenomena; sometimes even splinter hemorrhages of the nailbeds, fever, gangrene of toes, and elevated sedimentation rate leads very easily to the diagnosis of subacute bacterial endocarditis. However, blood cultures have been uniformly negative. The reason for these systemic reactions is not clear, but may be due to degenerative changes in the tumor itself. (19)

Routine laboratory findings have not been particularly helpful in the diagnosis of atrial myxoma. The electrocardiogram and the routine chest x-rays, including those with barium filled esophagus, have not been of aid in the diagnosis. There have been unusual instances of the diagnosis of cardiac tumor at fluoroscopy, (14) the

calcified tumor being seen bouncing about in the heart. The only two laboratory procedures which have led to the diagnosis on a number of occasions have been cardiac catheterization in which right atrial myxomata have been found, and more particularly angiocardiology. In angiocardiology the differential diagnosis would include thrombus, and possibly aneurysm of the sinus of Valsalva presenting into the atrium. The difference in location of the tumor and of most thrombi should make the diagnosis possible, (15, 16) as the tumor is attached to the fossa ovalis and is usually much larger.

This patient had a number of findings which favored the diagnosis of an unusual disease. First: he had been followed for a number of years and had never had rheumatic heart disease and never had a heart murmur. Secondly, he had an embolic episode without atrial fibrillation; third, he had the very peculiar situation in which he felt less dyspneic when he was lying down than when he was sitting up; fourth, the murmurs changed from day to day and from position to position. Of all these, the most important was the desire of the patient to lie flat or relatively flat even though he was quite dyspneic. It is difficult to describe a physiologic cause for this other than a changing degree of obstruction of the mitral orifice. There is no commonly accepted term for this type of dyspnea. Two sug-

gestions are eupnea decubitus and platypnea. (18) The confusing factors were the finding of an opening snap which we now know can occur in atrial myxoma, and the very confusing picture on the x-ray in which the barium filled esophagus shows a concavity on the right on one day, and two days later on the left.

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FEDERAL MILLS BILL

Federal law resulting from the Mills Bill now permits additional federal funds to be used by the states, on a matching basis, for the improvement of their medical care for the aged programs.

Under this law, these new matching funds are available to the states for use in two categories of need: 1) those now on the public assistance rolls (OAS recipients), and 2) those who are *not* on public assistance but who are unable to pay their medicals bills from their own resources.

Pelvic Pneumoroentgenography

Melvyn H. Schreiber, M.D.

Captain, MC, USAH

Fort Huachuca, Arizona

Pelvic pneumoroentgenography is a safe, rapid, and dependable method of acquiring additional information regarding the physical condition of the female pelvic viscera in selected cases. It has an advantage over culdoscopy in that it may be performed on out-patients with ease; and utilizing the technique described, it requires the services of one operator and one assistant. It provides a permanent record of the condition of all of the pelvic viscera which may be viewed at leisure by more than one physician, and it lends itself to numerous variations for the detection and diagnosis of pelvic disease.

PELVIC pneumoroentgenography is the term applied to X-ray visualization of the female pelvic viscera after induction of pneumoperitoneum. It has been in use for 40 years as an adjunct in gynecologic diagnosis, and various more or less complicated techniques have been evolved for the performance of the examination. This paper describes a rapid, simple, safe, and effective method of inducing pneumoperitoneum, positioning the patient, and exposing appropriate films, together with some examples of the results of the procedure.

INDICATIONS AND CONTRAINDICATIONS

The indications for pelvic pneumography are few and include the following: (1) verification of suspicious findings on pelvic examination and elucidation of equivocal findings, particularly in hard-to-examine obese, tense, unco-operative, or

virginal patients; (2) determination of the status of the pelvic viscera after surgical procedures when the extent of surgery is unknown; (3) determination of the presence and extent of lateral spread of pelvic tumors; (4) determination of the presence and degree of fixation of bowel loops to pelvic structures; and (5) to provide a permanent record of organ size, shape, and location for future reference, particularly in the case of pelvic neoplasms treated by radiation therapy. The examination is contra-indicated in very old and debilitated patients, in the presence of acute or subacute pelvic inflammatory disease, and in the presence of a tumor or mass which completely fills the pelvis.

MATERIALS

Equipment necessary for pelvic pneumography consists of a carbon dioxide dispensing de-

vice and materials needed for effecting peritoneal puncture under aseptic conditions (Figure 1). We have used the Tubaflator*, a device originally designed for performance of the Rubin test, with gratifying results. This instrument consists of a carbon dioxide reservoir from which the flow of gas is controlled by a sensitive needle valve, the volume of gas delivered being measured by the water displacement method; a built-in mercury manometer simultaneously registers the pressure. The unit utilizes readily available standard carbon dioxide cartridges.** An 18 to 20 gauge spinal needle with obturator and materials for cleansing and anesthetizing the skin at the puncture site complete the necessary equipment.

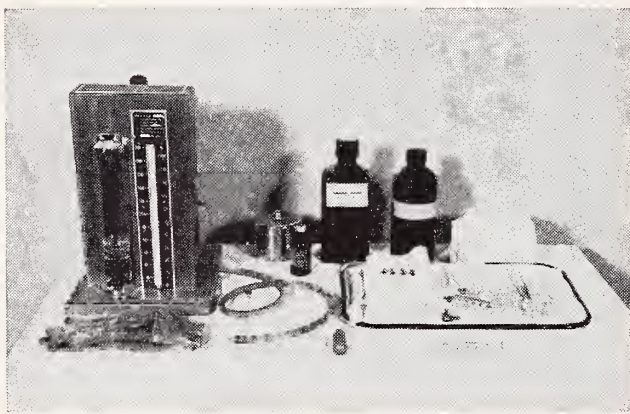


Figure 1

Equipment necessary for Pelvic Pneumography consists of a carbon dioxide dispensing device (Tubaflator, shown on the left) and materials needed for effecting peritoneal puncture under aseptic conditions.

PREPARATION OF THE PATIENT

The procedure is explained to the patient in detail to allay fear and ensure co-operation. A cleansing enema is administered about one hour prior to the examination, and the patient is asked to empty her bladder immediately before the examination is begun. The preceding meal is ordinarily withheld. We have not routinely used premedication of any sort. Rarely it has been necessary to administer a small dose of Demerol during the course of the examination in exceedingly anxious subjects for the relief of pain.

TECHNIQUE

Pneumoperitoneum may be induced in any of three ways: (1) trans-abdominally, (2) trans-

tubally, or (3) through a culpotomy incision. We have had no experience with the last-named method and abandoned trans-tubal insufflation because of the longer time required, the greater discomfort to the patient, and the ease of performance of trans-abdominal induction.

The patient is placed upon the radiographic table, and after cleansing, painting, and draping the abdomen, a skin wheal is raised with 1 per cent procaine in the left lower abdominal quadrant. The tissues down to the peritoneum are then infiltrated with the anesthetic agent, following which an 18 to 20 gauge spinal needle, the obturator in place, is used to pierce the peritoneum. If the peritoneum has not been rendered insensitive the patient will experience a brief, sharp pain which aids the operator in determining the position of the needle tip. The obturator is then removed, and the extra-vascular, extra-intestinal, and extra-urinary position of the needle tip is verified by aspiration with a 10 cc syringe.

The rubber tubing leading from the gas cartridge chamber is then attached firmly to the hub of the needle, and introduction of the gas is begun. (Figure 2). 1000 to 1500 cubic centimeters are required for a satisfactory examination, and in most patients this can be introduced in 5 to 10 minutes. If the tip of the needle is properly placed the patient will usually experience mild discomfort in the epigastrium or in the flanks after 500-600 cc of gas are introduced, and if the patient's head is tilted up, manifest shoulder pain makes certain the correct placement of the needle tip. If the patient denies all discomfort during introduction of the gas, one must become



Figure 2

Trans-abdominal pneumoperitoneum is induced through a left lower quadrant needle puncture.

*Tubaflator obtained from the Thomas Instrument Company, P.O. Box 6605, Houston, Texas.

**Nitrous oxide gas may be used with equal safety; it has the advantage of being absorbed much more rapidly from the peritoneal cavity being 8 times more soluble in body fluids than CO₂. A tank source may be fitted with an appropriate volume measuring device for this purpose.

suspicious that no gas is entering the peritoneal cavity; a leak somewhere between the gas cartridge and the patient will usually be found under these circumstances. If the needle tip is inadvertently placed retroperitoneally or in the soft tissue of the abdominal wall, the pressure reading on the mercury manometer may rise steadily, and a reading over 120-150 mm of mercury should arouse the suspicion of this complication. After introduction of the gas the needle is removed and a small dressing placed over the puncture site.

The patient is then helped into a prone position and accurately positioned to the center of the table. With the shoulder brace in place to prevent the patient from slipping forward, the table is then tilted into a 30 degree Trendelenburg position. The radiographic tube is tilted 15 degrees towards the patient's feet, and the central ray is directed to the tip of the coccyx (Figure 3). A 36 to 40 inch focal-film distance is utilized. An 11 x 14 film is placed in the Bucky tray perpendicular to the long axis of the body, and the exposure is made.

Technical factors will vary with the size and the weight of the patient. Since contrast between the intra-peritoneal gas and the pelvic soft tissues is desired, deliberate underexposure is sought, and the following factors have proved satisfactory:

95-120 lbs.	80-90 kvp	10-15 mas
120-170 lbs.	90 kvp	25-35 mas
170-200 lbs.	90 kvp	35-45 mas

Because of the uncertainty in choosing precisely the optimum exposure factors for each patient, it has been our practice to expose three films in rapid succession, one using the factors suggested above, one with 10 to 15 more mas and one with 10 to 15 less mas. In patients with very large pelvic tumors it may be necessary to use much higher milliamperes-second values in order to provide sufficient blackening on the film to entirely outline the mass. Ninety kilovolts should be sufficient for all, however.

After the films are exposed the table is returned to the horizontal level and the patient is permitted to assume any comfortable position. It is unusual for the patient to complain of discomfort sufficient to require medication once the



Figure 3
Following induction of pneumoperitoneum, the technician positions the patient in a 30° prone Trendelenburg position with the radiographic tube tilted 15° toward the feet and the central ray centered on the coccyx.

upright position is assumed following completion of the examination. If shoulder pain is trouble some, aspirin or small doses of codeine usually provide relief. Assumption of the recumbent position with the hips elevated is also effective. Carbon dioxide is absorbed from the peritoneal cavity in 8 to 24 hours, and the patient's discomfort has almost always abated by the following morning.

VARIATIONS

Any number of variations on this basic method may be applied. Oblique films, across-the-table lateral films, and decubitus films to demonstrate the thickness of the lateral pelvic walls may add additional information. Combined pelvic pneumoroentgenography and hysterosalpingography (gynecography) provides a comprehensive examination of the inner and outer contours of the pelvic viscera. The examination may be combined with excretory urography for demonstration of the relation of the ureters to the internal female genitalia, and other variations may be

used, depending on the indications.

COMPLICATIONS

Our experience with pelvic pneumorontgenography has tended to confirm the numerous reports in the radiological and surgical literature

of the harmlessness of the procedure. Many hundreds of examinations have been reported without bowel puncture, and if a careful technique is used the likelihood of peritonitis is exceedingly remote. The danger of gas embolism is small, carbon dioxide having been injected intravenous-



Figure 4

The uterus is asymmetrically enlarged to the right, presumably because of a large leiomyoma. The ovaries are normal in size, shape, and position. O — ovary; U — uterus; T — tumor.



Figure 5

The patient is a 26-year-old obese female who had never been pregnant. After menarche at the age of 11 she experienced amenorrhea until age 21, following which she menstruated normally for 6 months, again becoming amenorrheic until the present. Pelvic examination was unsatisfactory because of the patient's obesity. Laboratory tests were within normal limits. Pelvic pneumography revealed a uterus of normal size and shape, with bilaterally and symmetrically enlarged ovaries. Pre-operative diagnosis was Stein-Levinthal syndrome. Operation on 4-3-58 disclosed normal uterus and tubes, with bilaterally moderately enlarged ovaries. Each ovary had a thick white capsule with numerous small subcapsular cysts. Wedge resection was done on both sides. Pathological examination confirmed the diagnosis of Stein-Levinthal syndrome. O — ovary; U — uterus.



Figure 6

The patient is a 36-year-old female with no gynecological complaints. She had had bilateral tubal pregnancies in the past. Pelvic examination disclosed a moderately tender cystic fixed mass extending from the right pelvic wall to the uterus, the latter structure being displaced to the left. Pelvic pneumography showed a large right-sided rounded adnexal mass. Operation on 11-6-58 revealed a normal uterus and left adnexa. On the right a large inflammatory adnexal cyst was found with adhesions to the right oviduct and ileum. The pathological report was adnexal cyst with chronic inflammation and fibrosis. U — uterus; M — mass.



Figure 7

The patient is a 35-year-old female, gravida III, para III, with menorrhagia, urinary frequency, nocturia, dysuria. Pelvic examination revealed a tender 3 x 3 cm. right adnexal mass (6 x 7 cms. by another examiner). Pelvic pneumography showed a 6.5 x 8 cm. right adnexal mass which was thought to represent a tubo-ovarian abscess, uterine leiomyoma, or ovarian neoplasm. The left adnexal structures were poorly seen. Operation on 8-26-58 revealed mild pelvic inflammatory disease with adhesions and salpingitis on the left and an 8 x 5 x 3 cm. tubo-ovarian abscess on the right. U — uterus, slightly enlarged; M — mass; the superimposed opaque white densities represent residual barium in the recto-sigmoid.

ly for angiocardiology in man with no ill effects. Accidental introduction of 1000 cc of carbon dioxide into the subcutaneous fat of the abdominal wall in an exceedingly obese young woman was attended by no untoward effects. The transient discomfort usually experienced during introduction of the gas can almost always be tolerated by the patient without medication, and simple oral analgesics ordinarily control the short-lived shoulder pain which sometimes follows the procedure.

RESULTS

When successfully performed the following pelvic structures are usually visualized: (1) the uterus, seen as a transverse ovoid shadow 5-7 centimeters in width and 3-5 centimeters in length; (2) the uterine tubes, 3-6 millimeters in width; (3) the ovaries, small ovoid masses 2-4 centimeters in length and 1.5-3 centimeters wide; (4) the round ligaments, which may be distinguished from the oviducts by their anterior direction; (5) the bladder, a convex opacity between the uterus and the pubic symphysis, and (6) the rectum, an irregular soft tissue density

just anterior to the sacrum. Because of some unavoidable size distortion, estimation of organ size is probably best accomplished by comparison with other pelvic viscera. For example, in the normal pelvic pneumogram the ovaries are seen to be approximately one-fourth the size of the uterus.

Uterine, tubal, and adnexal masses can be most effectively demonstrated by this technique. Figures 4, 5, 6 and 7 illustrate several conditions in which diagnostic pelvic pneumoperitoneum has proved helpful.

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Vascular Surgery and Abdominal Aortic Aneurysm

Report of case four and one-half years after aortic transplant

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Yuma, Arizona

Carl M. Frye, M.D.

Newark, Ohio

Report is made of a patient who not only lived four and one-half years after excision of an aneurysmal abdominal aorta, but also enjoyed relatively robust health during most of this period. The aneurysmal aorta was replaced by a youthful homograft that proved functionally satisfactory throughout. The patient's ultimate death was caused not by disease of his aorta but by hemorrhage from an intercurrent duodenal ulcer. It is gratifying to report this patient's excellent recovery and active life following the removal of a large segment of diseased aorta. The apparently atherosclerotic disease that developed within the homografted (15-year-old's) aorta seems peculiar and its metabolic significance is not understood, but such relatively rapid deterioration of a healthy young homograft might be regarded as further evidence in support of the current trend toward the use of artificial or synthetic grafts instead of homotransplants.

VASCULAR surgery has made tremendous strides during the past decade and is destined to make even greater progress during the next. With each advancement in understanding of living physiology and each improvement in technic, the difficult vascular operations become more practical. The use of artificial heart-lung technics (extra-corporeal circulation) makes the impossible seem routine. Surgery within an open, quiet, bloodless heart is an amazing sight to witness and its future possibilities seem almost unlimited.

Cardiovascular disease is our leading cause of death today and any measure that may lessen the loss of life from this source should be welcome

to all. Even partial control of atherosclerotic disease will mean a further great increase in the already lengthened span of human life. Diet and chemistry may prove the final solution to this problem, but in the meantime other promising approaches should be encouraged. Arteriosclerosis is now the chief etiological factor in aneurysm of the aorta although formerly syphilis was quite important. The diagnosis of aortic aneurysm can often be made with little difficulty by ordinary means and without aortography. A large pulsating mass is readily palpable in most abdominal cases.

Surgical replacement of the abdominal aorta has proved successful only within recent years

ing an episode of immediate post-operative hem- and the literature on this subject is still quite limited. The usual operative technic includes complete occlusion (clamping) of the aorta just distal to the renal arteries for a variable period of time during which the diseased subjacent portion is removed and replaced by a homograft or prosthesis, thereby restoring the circulation to the lower half of the body. Complete interruption of the aorta is permissible for as long as two hours, if done distal to the renal arteries, but only for about twenty minutes, proximally. If the aneurysmal aorta proves unresectable, it may be bypassed or wrapped and supported by various agents, (polyethylene, teflon, dacron, ivalon, diacetyl phosphate, etc.).

Dubost (1951)(1) and Oudot (1953)(2) seem to have been amongst the first to successfully excise and replace the abdominal aorta, but DeBakey, Cooley and associates(3,4) began their epochal work at about the same time and are still quite active. Many others(5) have also contributed very much toward the solution of this difficult problem, particularly R. E. Gross. Recently Boyd and Pastel(6) reported twenty such cases in which fifteen were living after more than one year and only four still symptomatic; eleven had an entirely satisfactory outcome and six had no postoperative difficulties whatever. Their chief complications were vascular thromboses (five arterial, three venous) and bleeding from the anastomotic site. Injection of heparin into the common iliac arteries seemed to control the former and peritonealization the latter. The most exacting part of the technic seemed to be avoidance of the vena cava and duodenum.

The following report is of interest not only from a surgical standpoint but also from the viewpoint of pathologic physiology. The rapid development of an apparently atherosclerotic lesion in the transplanted 15-year-old's aorta seems quite unusual.

CASE REPORT

A tall, thin 66-year-old, white male developed during the year 1954, a large pulsating abdominal tumor mass that was promptly diagnosed as an aneurysm of the aorta, both by physical examination and by roentgenographic studies. The pulsating mass was readily palpable through the



Fig. 1. Penetrating, exsanguinating duodenal ulcer (arrow) showing open blood vessel in floor of ulcer

lower abdominal wall and was variously described by physicians as being the size of a "football" or small "watermelon". Concern was repeatedly expressed for the life of the patient in case of its rupture.

In December 1954 the patient was referred to an expert vascular surgeon, to whom we are indebted for the privilege of reporting this case. After further diagnostic studies, an entirely successful operative excision of the huge abdominal aneurysmal mass was done by Robert M. Zollinger, M.D., Columbus, O. (12/27/54). The aorta was removed from a point just distal to the renal arteries to a point well beyond the aortic bifurcation. The diseased vascular mass was then replaced by a segment of normal aorta (homograft), that had been taken from the body of a boy aged 15 years who had just been killed in an automobile accident.

Following this extensive operation the patient's convalescence was uneventful, except-

ing an episode of immediate post-operative hemorrhage that necessitated prompt re-exploration. The patient made a complete recovery within a few weeks and was soon able to resume work at his usual occupation as a gasoline-station attendant near our hospital. There he was repeatedly observed over a period of years doing real physical labor, and with no apparent difficulty (1955-1957).

Prior to his sudden death in December 1958, the patient had not been able to do heavy work for several weeks, but his general condition had been relatively good and he had been up and around as usual on the day preceding death. On the night of December 16, 1958 he awoke at about 4 A.M. feeling nauseated and dyspneic. He got up and went to the bathroom of his home, whereupon he vomited about a pint of dark-red blood and bloody fluid. He then collapsed to the bathroom floor and died before his wife could obtain assistance.

An autopsy, performed within a few hours,

demonstrated an intact abdominal aorta, in good functional condition. An exsanguinating hemorrhage had taken place, not from the aorta but from an old, indurated, duodenal ulcer (Fig. 1). The ulcer had eroded into a sclerotic blood vessel and about 1000 ml of bloody fluid and blood clots were found within the lumen of the stomach. A similar quantity of bloody material was also present in the intestinal tract. The entire aorta was in relatively good functional condition. The homografted segment from the 15-year-old's aorta was in good condition as shown in the accompanying photograph (Fig. 2), but some odd intimal plaques of apparently atherosclerotic nature were noted. The aorta, proximal to the homograft was severely atherosclerotic and somewhat aneurysmal but functional. The common iliac arteries were also severely diseased and somewhat stenosed but still patent.

Microscopic study of the transplanted 15-year-old's aorta seemed to indicate that the homograft had undergone the usual partial replace-



Fig. 2. Transplanted youthful abdominal aorta (center) with attached segment of older aorta (above) and common iliac arteries below.



Fig. 3. Transplanted abdominal aorta (close up) showing central atheromatous plaques.

ment-necrosis and absorption, but also a senile type of intimal atherosclerosis. Atherosclerosis of this degree at the age of 15 years is quite unusual and suggests the presence of hormonal or chemical factors of some sort, circulating within the elderly atherosclerotic's bloodstream that predispose in some way to the formation of atherosclerotic plaques. Of course the transplanted aorta had been severed from its normal blood supply and therefore may have been hypersusceptible to atherosclerosis. The reaction of a host's bodily tissues toward a mass of transplanted tissue and foreign protein is seldom friendly and often quite hostile, but this probably does not fully account for the pathology noted here. Parkview Hospital, Yuma, Ariz. (Dr. Moorhead).

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Studies on eight transplantable plasma-cell neoplasms of mice. Michael Potter and John L. Fahey, National Cancer Institute, Bethesda, Maryland. J. Nat. Cancer Inst. 24:1153-1165, 1960.

Summary — Eight plasma-cell neoplasms from mice of strain C3H/He or BALB/cAn, which were associated with the appearance of serum myeloma globulin in each new host, have been maintained in transplant. Each neoplasm was differentiated from the others by a characteristic serum- or urinary-protein electrophoretic pattern that developed during progressive growth of the transplanted tumor. The various plasma-cell neoplasms produced a variety of globulins with electrophoretic mobilities extending from the gamma to the alpha region. Each neoplasm produced proteins that were confined to a part of this globulin region, which indicates a restricted protein-producing capacity. Two neoplasms, which produced similar serum globulin electrophoretic patterns, were differentiated by the appearance of Bence Jones protein in the urine of mice bearing one of the neoplasms but not in mice bearing the other. During serial transplantation, or transplantation to hybrids and certain other strains, the characteristic serum- and urinary-protein changes remained constant and did not change. It was concluded that the globulin production unique to each tumor was a stable heritable characteristic.



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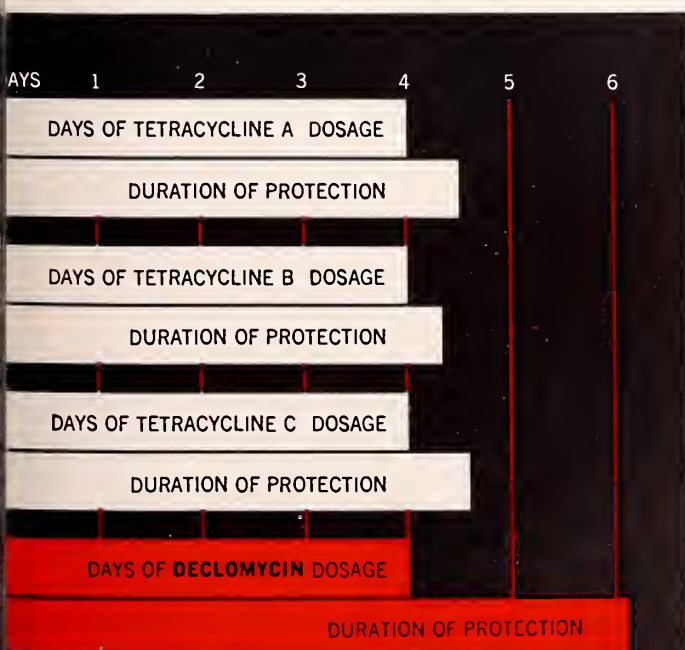
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The Present Status of Gold Therapy Phenylbutazone (Butazolidin) and The Chloroquines (Aralen, Plaquenil)*

L. Maxwell Lockie, M.D.

Professor and Head of the Department of Therapeutics
Medical School,
University of Buffalo

The intelligent uses of these drugs (gold salts, phenylbutazone (Butazolidin), and the chloroquines (Aralen, Plaquenil)), as part of the selected, individual, broad program of management mark further improvement in the treatment of arthritis, as they help to lessen the progression of the disease, and at the same time the patient is made more comfortable.

GOLD salts, when combined into an overall complete program of treatment for patients with rheumatoid arthritis, is the most effective agent in our armamentarium to halt the progress of rheumatoid arthritis. Data(1) reveal that, in a large group of patients, 92 per cent experienced some degree of favorable response to therapy; 57 per cent of the group enjoyed a complete remission or showed major improvement. Gold sodium thiomalate was used routinely, gold thioglucose occasionally.

The antiarthritic action of gold salts is not yet understood. Objective evidence of improvement develops slowly, usually requiring at least six to eight weeks. First to appear is gradual abatement of the inflammatory phase of the arthritis, accompanied by a fall in the erythrocyte sedimentation rate. This is followed by lessening of pain and stiffness in the joint, and in a few weeks by improvement in general health.

*Presented at the Fourth Annual Meeting of the Medical Society of the United States and Mexico, December 4, 1959, Scottsdale, Arizona.

Some quotations taken from "Arthritis and Allied Conditions," published by Lea and Febiger, Philadelphia, edited by Joseph L. Hollander, M.D.

These results will continue over a long period but it is impossible to predict the degree to which they will progress. The drug is of greatest benefit in treating patients who have an active arthritic process, during the early or moderate stage of rheumatoid arthritis. Gold therapy should *not* be reserved for use as a last resort, for by then the period of its greatest usefulness is likely to be past. In recent years rheumatologists have come to prescribe gold as early as possible in the course of rheumatoid arthritis. It is especially beneficial in preventing further joint damage, as is noted in the study of our patients, only 7 per cent of whom failed to show measurable improvement.

In any one of several possibly coexisting conditions, e.g., acute disseminated lupus erythematosus, severe kidney or liver impairment, or pregnancy, gold is not to be prescribed. It can, however, be administered safely in the presence of peptic ulcer, mental disturbances, hypertension, or diabetes. Age alone is not a contra-indication, for children can be given gold in suitably reduced dosage over periods of years; the same applies to elderly patients, even those over the

age of 80. In both of these widely separated age groups it has proved effective.

The gold salt is given intramuscularly at seven-day intervals, the initial dose consisting of 10 mg., the second dose of 20 mg., and thereafter a dose of 40 mg. each week. If no signs of sensitivity appear, treatment is continued until 500 mg. has been administered. At this juncture the future weekly dosage of gold is determined on the basis of the patient's clinical status. Individuals with moderate or severe arthritis usually require further weekly injections of 40 mg. until a total dosage of 800 mg. has been administered. The treatment is then carried on with 20 mg. per week for a variable period, depending on clinical improvement, before cutting down to 10 mg. weekly. Thereafter, doses of 10 mg. are given at varying intervals, determined by the patient's condition, until a final schedule of 10 mg. once every four weeks for an indefinite period is achieved.

At each visit, prior to injection, the patient is questioned concerning such early signs of sensitivity as glossitis, stomatitis, or dermatitis. A complete blood count and urinalysis are necessary every two weeks during the first six weeks of treatment. Later blood studies and urinalysis may be carried out at monthly intervals. The current weekly schedule of a moderate amount of gold has almost entirely eliminated the hazard of severe toxic reactions.

Evidence of Sensitivity

Many patients will have a mild glossitis, stomatitis, or dermatitis but, with a decrease in the amount of gold given at weekly intervals, these symptoms usually disappear. In this group, especially, the effectiveness of therapy is amazing. While these reactions are mild and do not require that gold be discontinued, the physician must watch carefully in order that the symptoms do not become more severe. If deemed advisable, the gold may be omitted temporarily for a few weeks and then resumed with a smaller dosage. Occasional patients may develop severe reactions, but the number of such individuals is small when compared with the large group whose rheumatoid arthritis can be treated uneventfully with weekly intramuscular injections of gold salts. Beside the commonly seen sensitivity manifestations of glossitis, stomatitis and mild derma-

titis, clinicians have reported albuminuria, gastrointestinal upsets, eosinophilia, colitis, tracheitis, and purpura, all of which have been observed in our group. If albuminuria is mild and does not tend to become worse, gold salts are continued. The more serious gold reactions, which fortunately now are rare, are likely to occur only when the administration of gold salts is pushed incautiously despite the warning appearance of glossitis, stomatitis or dermatitis. Should a severe reaction develop, it can usually be controlled by stopping the administration of gold and starting promptly the vigorous use of antihistamines, corticosteroids, or corticotrophin. When the toxic manifestation is not easily controlled, the use of BAL (British anti-lewisite) will prevent further involvement. With reasonable supervision, gold salt therapy can be continued in many patients for years without significant difficulty.

Results

A total of 369 patients, each of whom was seen at weekly intervals for a minimum of at least three months (many have been followed for years) received a minimum of 300 mg. of gold salts intramuscularly, were compared with 566 controls. Patients in the control group received the same broad program of treatment, but instead of an injection of gold salts, they were given a weekly injection of streptococcus vaccine containing 4 million organisms. Of those treated with gold salts, only 7 per cent, as already stated, failed to show some improvement, whereas this was true of 13 per cent among the controls. In the group treated with gold salts 57 per cent experienced a complete remission or showed major improvement. This was in comparison with 38 per cent among the controls. Patients in a group receiving individually a total of less than 300 mg. of gold salts, however, showed no greater improvement than did those who were given no gold at all.

Conclusion

The above data confirm the clinical impression that gold salts given by intramuscular injection, as one vital component of a rounded, conscientiously followed program for the treatment of rheumatoid arthritis, afford patients a 20 per cent advantage in terms of a better chance of complete recovery or of major improvement. Modern gold salt therapy, wisely administered,

may be continued safely over a period of many years.

Evidences of mild sensitivity often do occur; however, they are usually readily controlled by decreasing the dosage or omitting a few doses of gold. Severe reactions develop in less than 1 per cent of patients and are combated with appropriate measures.

Thus, in the modern, many-sided therapy of rheumatoid arthritis, injectable gold salts have come to occupy a position of proved worth and demonstrated safety.

PHENYLBUTAZONE (BUTAZOLIDIN)

In 1949 a new anti-arthritic compound was introduced for therapeutic trial consisting of 15 per cent aminopyrine and 15 per cent phenylbutazone sodium. This product was given the name Irgapyrine in Europe and Butapyrin in the United States. It soon was evident that this drug was of value in the treatment of various arthritic conditions.

Pharmacological Action

Clinical response to phenylbutazone depends on its three major properties of analgesia, antipyrexia, and as an anti-inflammatory agent.

The absorption of phenylbutazone from the gastrointestinal tract is rapid and complete, the peak of plasma concentration being reached in two hours, whereas absorption from intramuscular injection is slow, with peak plasma levels 6-10 hours later. The only advantage of the intramuscular route of administration is a reduction of gastrointestinal effects. On repeated daily doses there is an accumulation of this drug in the body with a steadily rising concentration in the plasma until a plateau is attained by the third or fourth day. The plasma plateau level, a result of slow biotransformation at relatively low plasma levels, can be obtained in single daily doses or in divided doses. The plasma plateau level on the recommended therapeutic dosage varies from 50 to 150 mgm per liter. After withdrawal of the drug, detectable quantities are present in the body for 7-10 days, or longer. This plateau which is constant for each patient, varies because of differences in individual rates of biotransformation averaging 15 to 25 per cent, daily. The half life of the drug in man is 72

hours. The plasma plateau level of any patient taking 1600 milligrams daily is not appreciably greater than at 800 milligrams daily. An increase in dosage will not result in added beneficial effect. Phenylbutazone has a much greater affinity for the plasma proteins than tissue proteins: so that about one-third of a single dose is localized in the plasma (which is only 5 per cent of the total body weight.)

Small amounts of two related compounds are found in the urine (with only traces of phenylbutazone per se). It is probable that they represent the major metabolic pathways since both these products are exteriorly metabolized when given intravenously.

Creatinine clearance studies indicate that glomerular filtration is not effected, but that decreased excretion of water and salt is due to increased tubular re-absorption. There are various drugs, such as demerol and morphine, whose intensity and duration of action are increased by phenylbutazone. This may be the result of a decrease in their urinary excretion. In fact, pretreatment with phenylbutazone doubled and tripled the intensity and duration of the analgesic effect. Phenylbutazone does appreciably alter the excretion of substances such as steroids, PAH, and urate which are influenced by protein binding.

Phenylbutazone has no known effect on endocrine balance. It does not cause a fall in adrenocortical ascorbic acid, alter urinary excretion of 17-ketosteroids, or effect either carbohydrate metabolism or insulin requirement, but typically reduces the elevated serum protein-polysaccharide ratio which accompanies inflammation. Reduction in the hematocrit seen during therapy with this drug is a result of its sodium and chloride retaining properties.

The indications for the use of phenylbutazone are many since it is valuable in treating other conditions as well as rheumatoid arthritis. The most spectacular results are obtained in patients who have rheumatoid spondylitis or gouty arthritis. Those with rheumatoid spondylitis derive marked benefit even with low dosage over long periods of time. This effect is far greater than that obtained by salicylates alone. These patients tolerate the drug well.

In acute gouty arthritis the relief of symptoms occurs in almost all patients using large amounts over a 24 to 48 hour period. An effective dosage is 200 mg. every 2 hours for 4 doses — to be repeated the next day, if necessary. No untoward effects have been observed in any of the patients with gouty arthritis using this plan of dosage.

It is suggested that the daily dose does not exceed 400 milligrams. With the limitations of this drug in treatment of rheumatoid arthritis, it frequently provides temporary relief to those not responding to other analgesics, but should be administered under strict medical supervision. The dosage used in adults should be the minimum required to control the symptoms of rheumatoid arthritis. If an initial dose of 600 mgm. per day is given, after two days the dose should be decreased to 400 mgm. daily for the next few days before gradually lowering to a maintenance dose of 100 to 300 mgm. per day. *It is important to emphasize if no improvement occurs after one week, the drug should be discontinued.*

Because of adverse side reactions phenylbutazone should not be used in the presence of:

1. Pre-existing edema
2. Cardiac decompensation
3. Peptic ulcer
4. Blood dyscrasias and severe anemia
5. In combination with other potent medications which would increase the hazards of toxic reaction.

This drug must be used with caution in the presence of:

1. Hypertension
2. Cardiac conditions other than decompensation
3. Hepatic damage
4. Renal insufficiency
5. Senescence
6. Drug sensitivities

Similar to all other potent anti-arthritic drugs, phenylbutazone causes adverse side reactions in a certain percentage of patients. At the present time there is no satisfactory method of anticipating serious complications with this drug and

these reactions are not related to dosage or duration of treatment.

In view of the efficacy of phenylbutazone and considering the side effects of adrenal cortical steroids as well as other anti-rheumatic agents used today, this drug deserves a position of prominence in the treatment of rheumatoid arthritis. With proper indications and precautions, phenylbutazone can be an important adjunct in treating rheumatoid arthritis, however the greatest therapeutic results are noted in rheumatoid spondylitis and gouty arthritis.

CHLOROQUINES (ARALEN, PLAQUENIL)

Since 1953 increasing numbers of medical reports present data which indicate the chloroquine group of drugs (Aralen-chloroquine phosphate) (Plaquenil, hydroxy-chloroquine sulfate) possess antirheumatic properties. Experience has shown symptomatic improvement in rheumatoid arthritis is best attained when they are given continuously for a minimum period of six months. Two excellent double blind studies tend to support the clinical evidence thus reported. (5) (3)

PHARMACOLOGY

Chloroquine phosphate is rapidly and completely absorbed when taken orally. The daily ingestion of 500 mg. increases the blood plasma level gradually over a period of four weeks to a maximum of 0.2 per liter. When it is discontinued the blood plasma level falls to half in five days. The concentration in the liver, kidney and lung is 400-700 times that in the blood plasma. Parker and Irwin(10) attribute this to affinity for nucleoproteins and nucleates. 10 to 20 per cent is excreted in the urine. This can be considerably accelerated by acidifying the urine with ammonium chloride administered orally.

THE CLINICAL USE OF CHLOROQUINES

At the present time the chloroquines have been shown to possess antirheumatic effects with symptomatic improvement in some patients with rheumatoid arthritis, especially those patients who have a positive L.E. cell phenomena.

Chloroquine phosphate (Aralen) is given as a 250 mg. tablet at supper or bedtime. Some patients will develop side effects. However, when they subside with cessation of the drug, treat-

ment may be resumed with half the original dose and then, if well tolerated, the full dose of 250 mg. daily may be resumed. A few, 5-15% must discontinue the drug completely. Significant improvement is most likely to occur after six months continuous therapy.

Hydroxychloroquine sulfate (Plaquenil) is administered in two divided doses of 200 mgm. each daily for initial and maintenance therapy. Now this is preferred to chloroquine (Aralen) as there are only 50% of the toxic effects and certainly should be given to those intolerant to it. Bagnall(2) gave it to 28 patients unable to take prolonged chloroquine phosphate (Aralen) therapy. 17 had some degree of improvement or better, while 7 had significant side effects.

The chloroquines may be discontinued at any time without withdrawal phenomena. It is suggested that *they should not be given:*

- 1. With concomitant use of gold salt injections or with phenylbutazone (Butazolidin).
- 2. To patients who are sensitive to quinine.
- 3. To those who have psoriasis, or liver, kidney and lung diseases.

TOXICITY

Bagnall(2) reported 41% males and 64% females experienced some type of side effect during the daily ingestion of 250 mg. chloroquine phosphate (Aralen). Usually decreasing the dose was sufficient to control these side effects in this series in 32%, but in 5% males and 15% females it was necessary to discontinue the drug. Cohen and Calkins(3) found they had to discontinue it in one-third of their cases, Scherbel(12) in 7%, LaTona and Norcross(8) reported reactions in 41 of 145 patients and in 13 it was necessary to discontinue the drug due to:

- Anemia and leukopenia1
- Blurred vision and corneal infiltration .2
- Nausea and G.I. upset3
- Rash4
- Headache and dizziness3

Skin lesions were the most common evidence of sensitivity. They were several varieties —

maculopapular, purpuric, lichenoid or various other pleomorphic types. Usually several months of continuing therapy preceeded the onset of the skin lesion. Decreasing the dose usually was sufficient to control them, however, occasionally the drug had to be stopped.

Gastro-intestinal symptoms appeared in 15-25% consisting of varying degrees of anorexia, nausea, vomiting, burning in epigastrium or abdominal cramps. In these instances, usually administration with meals or decrease in dosage or both, would be sufficient to permit continued therapy without these symptoms.

There are several other side effects which occur occasionally. They consist of falling out of some of the hair, blanching in blonds or red-heads, leukopenia, blurring of vision, neurologic or mental disturbances. Usually the chloroquine was stopped if these reactions occurred.

The reactions are 50% less with hydroxychloroquine sulfate, (Plaquenil.) Freedman(5) stated that none of the 50 patients studied had any toxic effects of significance while taking 300 mg. chloroquine sulfate daily for 2 years.

RESULTS

It is interesting to present the results of several reports in tabular style:

	No. of Patients	Major Improvement	Minor Improvement	No Improvement
Haydu(7)	28	22	5	1
Freedman*(5)	50	43	3	4
Cohen and Calkins**(3)	20	18		2
Rinehart —(11)				
adults	14	4	4	6
children	11	8		3
Fuld(6)	39	31		8
Scherbel(12)	60	36	20	4
Cramer(4)	123	95	15	13
Lockie et al/.(9)	124	59	28	37
Bagnall(2)	150	100		
LaTona and Norcross(8)	145	45		100

*Part a double blind study
**Double blind study

The chloroquine group of drugs possess anti-rheumatic effects for some patients with rheumatoid arthritis. Several more carefully controlled experiences with longer periods of observation are necessary to assess properly the anti-rheumatic activity of these drugs.

Estado Actual de la Terapeutica Por Oro, Felibulazona (Butazolidina) y las Cloroquinas

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El uso inteligente de estas drogas (sales auricas, butazolidina y las cloroquinas: Aralen y Plaquenil), como parte de un tratamiento individual, selectivo e integral, constituye un marcado avance en el tratamiento de la artritis, previniendo el progreso de la enfermedad trayendo al mismo tiempo el alivio tan deseado por el paciente.

Las Sales De Oro

Cuando se aplican a un programa integral de tratamiento a pacientes con Artritis Reumatoide, constituyen uno de los agentes más efectivos en el armamentarium médico para contener el progreso de esta enfermedad. Las estadísticas demuestran que de un grupo considerable de enfermos el 92% experimento una respuesta favorable en cierto grado al tratamiento; el 57%, tuvieron una remisión completa a mejoraron notablemente. Se usó de rutina el Tiomalto Sódico; la Tio-glucosa áurica ocasionalmente.

La acción antiartrítica de las sales de oro no está bien aclarada. La mejoría gradual es evidente requiriendo habitualmente de seis a ocho semanas. Lo primero en aparecer es el abatimiento de la fase inflamatoria de la artritis acompañada de una baja de la sedimentación globular. Esta es seguida por disminución del dolor y de la rigidez en la articulación; y en unas pocas semanas por mejoría en el estado general. Este resultado continuará por un largo período de tiempo, pero es imposible predecir hasta que grado progresará. La droga es altamente benéfica cuando se trata de pacientes que tienen un proceso activo de artritis, durante el estado primi-

tivo o moderado de la artritis reumatoide. La Auroterapia no deberá reservarse para usarse como último recurso, porque para entonces el período de su máxima utilización habrá pasado. En los últimos años los reumatólogos han venido recetando oro, tan tempranamente como sea posible, en el curso de una artritis reumatoide. Esto es especialmente benéfico en la prevención de futuro daño en la articulación, como ha sido marcado en el estudio de nuestros pacientes, en quienes únicamente el 7 por ciento no presentó una mejoría perceptible.

En cualquiera de las varias posibles condiciones coexistentes, tales como; lupus eritematoso agudo diseminado, grave deterioramiento del riñón o del Hígado, o embarazo, el oro no será recetado. Esto puede, como quiera que sea, ser administrado sin peligro, en presencia de úlcera péptica, disturbios mentales, hipertensión o diabetes. La edad sola, no es una contraindicación; para niños el oro puede ser dado en dosis reducidas por períodos de años; lo mismo se aplica para pacientes ancianos, incluso aquellos que sobrepasan de los 80. En ambos de estos grupos ha probado su efectividad.

Las sales de oro son dadas intramuscularmente a intervalos de siete días, la dosis inicial es de 10 mg., la segunda es de 20 mg. y después una dosis de 40 mg. cada semana. Si no aparecen signos de sensibilidad, el tratamiento es continuado

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**Traducción al español por el doctor Carlos V. Greth, Phoenix, Ariz.

hasta que hayan sido administrados 500 mg. Al llegar a este momento, la futura dosificación semanal de oro es determinada sobre las bases del estado clínico del paciente. Los individuos con artritis moderada o severa usualmente requieren mas inyecciones semanales de 40 mg. hasta que ha sido administrada una dosis total de 800 mg. El tratamiento es entonces llevado con 20 mg. por semana por un período variable, dependiendo de la mejoría clínica, antes de reducir la dosis a 10 mg. semanales. Mas adelante, dosis de 10 mg. son dadas a intervalos variables determinados por las condiciones del paciente hasta que un programa final de 10 mg. cada 4 semanas es ejecutado por un período indefinido.

En cada visita, siguiente a la inyección, el paciente es preguntado concerniente a aquellos tempranos signos de sensibilidad como glositis, estomatitis o dermatitis. Una completa cuenta globular y análisis de orina son necesarios cada 2 semanas durante las primeras seis semanas de tratamiento. Subsecuentes estudios de sangre y orina deben ser hechos a intervalos mensuales. El presente programa semanal de cantidades moderadas de oro, ha casi eliminado enteramente el peligro de reacciones tóxicas severas.

Evidencias de Sensitividad:

Muchos pacientes tendrán moderado glositis, estomatitis o dermatitis pero, con una disminución en la cantidad de oro dada a intervalos semanales, esos síntomas usualmente desaparecen. Especialmente en este grupo la efectividad de ésta terapéutica es asombrosa. Aun cuando reacciones son moderadas y no requieren que el oro sea discontinuado, el paciente debe ser cuidadosamente supervisado por el médico para que los síntomas no vengán a ser más severos. So se juzga conveniente, el oro puede ser omitido temporalmente por unas pocas semanas y entonces empezado con una dosis más pequeña. Ocasionalmente algunos pacientes pueden desarrollar severas reacciones, pero el número de esos individuos es pequeño, comparado con el gran grupo de enfermos con artritis reumatoide que pueden ser tratados con inyecciones semanales de oro, sin evidencia de sensibilidad. Junto a las manifestaciones de sensibilidad comunmente vistas, como glositis, estomatitis y dermatitis algunos clínicos han reportado albuminuria, trastornos gastrointestinales, eosino-

filia, colitis, traqueitis y púrpura; todas ellas vistas también en nuestro grupo. Si la albuminuria es moderada y no tiende a aumentar, las sales de oro son continuadas. Las más serias reacciones, las cuales afortunadamente son raras ahora, probablemente ocurren solamente cuando la administración de sales de oro es aplicada imprudentemente a pesar de la presencia de glositis, estomatitis o dermatitis. Cuando se desarrolla una reacción severa, puede ser controlada usualmente, suspendiendo la administración de oro y empezando un pronto y vigoroso uso de antihistamínicos, corticoesteroides o corticotrofín. Cuando las manifestaciones tóxicas no son fácilmente controladas, el uso de BAL (British anti-lewisite) prevendrá futuras complicaciones.

Con razonable supervisión la terapéutica con sales de oro puede ser continuada en muchos pacientes, por años, sin dificultades.

Resultados:

Un total de 369 pacientes cada uno de los cuales fué visto a intervalos semanales por un plazo no menor de 3 meses (muchos han sido seguidos por años) recibió un mínimo de 300 mg. de sales de oro intramuscularmente, y fueron comparados con 566 controles. Pacientes en el grupo control recibieron el mismo amplio programa de tratamiento, pero en vez de una inyección de sales de oro se les aplicó una inyección semanal de vacuna estreptocócica conteniendo 4 millones de organismos. De esos tratados con sales de oro, solamente 7 por ciento como fué dicho, falló en presentar alguna mejoría, mientras que en el grupo control fue 13 por ciento. En el grupo tratado con sales de oro, 57 por ciento experimentó una completa remisión, o mostró una gran mejoría. Esto fué en comparación con 38 por ciento entre el grupo control. Pacientes dentro de un grupo recibiendo individualmente un total de menos de 300 mg. de sales de oro, como quiere que sea, no mostró mayor mejoría que aquellos a quienes no les fué dado oro para nada.

Conclusión:

Los datos anteriores confirman la impresión clínica que oro, dado por inyección intramuscular, como un vital componente de un redondeado y concienzudo programa seguido para el tratamiento de artritis reumatoide, produce pacientes un 20 por ciento, ventajoso en términos de mejor

oportunidad de completa recuperación o gran mejoría. La moderna terapéutica con oro, hábilmente administrada, puede ser continuada sin riesgo por un período de muchos años.

Evidencias de moderada sensibilidad ocurren frecuentemente, como quiera que sea, son usualmente controladas disminuyendo la dosis o omitiendo unas pocas dosis de oro. Severas reacciones desarrollan en menos de 1 por ciento de los pacientes y son combatidas con medidas apropiadas.

Así en la moderna polifacética terapia de artritis reumatoide las sales de oro inyectables han venido a ocupar una posición de probado mérito y demostradaseguridad.

PHENYLBUTAZONE (BUTAZOLIDIN)

En 1949 un nuevo compuesto anti-artrítico fue introducido para ensayo terapéutico consistente de 15 por ciento aminopirina y 15% fenilbutazona de sodio. Este producto recibió el nombre de Irgapyrina en Europa y Butapyrina in los Estados Unidos. Pronto fue evidente que esta droga era de valor en el tratamiento de varias condiciones artríticas.

Acción Farmacológica:

La respuesta clínica a la fenilbutazona depende de sus tres mayores propiedades de analgesia, antipirexia y como un agente antiinflamatorio.

La absorción de la fenilbutazona por a vía gastrointestinal es rápida y completa, el máximo de concentración plasmática es alcanzado en 2 horas, mientras que la absorción por la vía intramuscular es lenta, con máxima concentración plasmática 6 a 10 horas mas tarde. La única ventaja de la administración por vía intramuscular es una reducción de efectos gastrointestinales. En repetidas dosis diarias hay una acumulación de esta droga en el cuerpo con una sostenida elevación en la concentración plasmática hasta que una meseta es alcanzada al tercer o cuarto día. El nivel de meseta plasmática, un resultado de lenta bio-transformación a relativamente bajos niveles plasmáticos, puede ser obtenida con una sola dosis terapéutica recomendada, varía de 50 a 150 mgm. por litro. Después del suspensión de la droga, perceptibles cantidades es-

tán presentes en el cuerpo por 7-10 días, o más. Esta meseta la cual es constante para cada paciente, varia debido a diferencias individuales en la capacidad de bio-transformación promediando 15 a 25 por ciento diariamente. La vida media de la droga en el hombre es de 72 horas. El nivel de meseta plasmático de cualquier paciente recibiendo 1600 mg. diariamente, no es mayor que recibiendo 800 mg. diarios. Un aumento en la dosis no resultará en aumento del efecto benéfico. La fenilbutazona tiene mucho mayor afinidad por las proteínas plasmáticas que por las proteínas tisulares: así que aproximadamente un tercio de una simple dosis es localizada en el plasma (el cual es solamente 5 por ciento del peso corporal total).

Pequeñas cantidades de estos dos compuestos se encuentran en la orina (con solamente trazas de phenylbutazone). Es probable que ellos representan los mayores cursos de su metabolismo ya que ambos son metabolizados exteriormente cuando se les administra por vía intravenosa.

Los estudios de eliminación de creatinina indican que la filtración glomerular no es afectada sino que la excreción reducida de agua de sales es debida a un aumento en la reabsorción tubular. Hay varias drogas como el demerol y la morfina, cuya intensidad y duración son aumentadas por la butazolidina. Esto puede ser el resultado de una disminución en su excreción urinaria. De hecho un pretratamiento con butazolidina altera apreciablemente la excreción de sustancias como los esteroides PAH, y uratos que son influenciados por enlace proteínico.

La butazolidina no tiene efecto conocido en el balance endocrino. No causa descenso en el ácido ascórbico adrenocortical ni altera la excreción urinaria de los 17-Cetosteroides ni afecta tampoco el metabolismo de los carbohidratos ni el requerimiento de insulina pero reduce típicamente los compuestos del suero proteino-polisacáridos que acompañan a la inflamación. La reducción en el hematocrito que se observa durante la terapia con esta droga es el resultado de sus propiedades retentivas de Sodio y cloruros.

Las indicaciones para el uso de la butazolidina son muchas ya que tiene incalculable valor en el tratamiento de muchas enfermedades así

como en la artritis reumatoide. El resultado mas espondilitis reumatoide o artritis gotosa. Aquellos con espondilitis reumatoide obtienen marcados beneficios hasta con bajas dosis por largos periodos de tiempo este efecto es mucho mayor que el que se obtiene con salicilatos solos. Estos pacientes toleran bien la droga.

En artritis gotosa aguda el alivio de sintomas ocurre en casi todos los pacientes usando grandes cantidades sobre un periodo de 24 a 48 horas. Una dosis efectiva es 200 mg. cada 2 horas por 4 dosis que será repetida el dia siguiente si es necesario. No han sido observados efectos desfavorables en ninguno de los pacientes con artritis gotosa usando este plan de dosificación se usa.

Es de sugerir que la droga *no exceda* de 400 mg. Con las limitaciones de esta droga en el tratamineto de artritis reumatoide frecuentemente provee alivio temporal a aquellos que no responden a otros analgésicos; pero debe ser administrada bajo estricta supervisión médica. La dosis usada en adultos debe ser la mínima requerido para controlar los sintomas de artritis reumatoide. Si es dada una dosis inicial de 600 mg., después de dos dias debe ser reducida a 400 mg. diariamente por unos pocos dias, antes de bajarla gradualmente a lo dosis de mantenimiento de 100 a 300 mg. por dia. *Es de suma importancia enfatizar que si no hay mejoría despues de una semana, esta droga debe de ser suspendida.* Debido a las adversas reacciones colaterales fenilbutazona no deberá ser usada en presencia de:

1. Edema pre-existente.
2. Descompensación cardiaca.
3. Ulcera péptica.
4. Discracias sanguíneas y marcada anemia.
5. En combinación con otras medicaciones potentes que pudieran aumentar los riesgos de reacción tóxica.

Esta droga deberá ser usada con precaución en presencia de:

1. Hipertensión.
2. Otras condiciones cardíacas (Descompensación ya fué nombrada arriba).
3. Lesión hepática.
4. Insuficiencia renal.
5. Vejéz.
6. Sensitividad a la droga.

Como todos las otras potentes drogas antiartríticas, la butazolidina causa adversas reacciones colaterales en un cierto porcentaje de pacientes. Hasta el tiempo presente, no hay un método satisfactorio de anticipar serias complicaciones con esta droga y estas reacciones no están en relación con la dosis o la duración del tratamiento.

En vista de la eficacia de la butazolidina y considerando les efectos colaterales de los adrenocorticoesteroides así como de otros agentes antireumáticos usados hoy en dia, esta droga reserva una prominente posición en el tratamiento de artritis reumatoide. Con apropiadas indicaciones y precauciones la butazolidina puede ser un importante acosiado en el tratamiento de artritis reumatoide ya que el más grande resultado terapéutico es notado en espondilitis reumatoide y artiritis gotosa.

CLOROQUINAS. ARALEN.

Desde 1953, un número crecido de reportes médicos indican que el grupo de las cloroquinas (Aralen-fostato de cloroquina) (el plaquenil, sulfato de hidroxiclo-roquina) posee propiedades antireumaticas. La experiencia ha demostrado que cuando estas drogas se administran continuamente por un período no menor de 6 meses, se obtienen los mejores resultados.

FARMACOLOGIA

El fofato de cloroquina es rapidamente y completamente absorbido cuando se administra por vía oral. La diaria ingeshinó de 500 mg. aumenta el nivel sanguineo gradualmente por un periodo de 4 semanas a un máximo de 0.2 por litro. Cuando se para su administración, el nivel sanguineo baja a la mitad en 5 días. La concentración en el hígado, en el riñon y en el pulmon es 400 o 700 veces mayor que en el plasma. Parker e Irwin atribuyen esto, a una afinidad para las nucleoproteinas y los nucleótidos. Del 10 al 20% se elimina en la orina. La eliminación por la vía urinaria se puede acelerar notablemente, acidulando la orina con cloruro amónico administrado por la vía oral.

EL USO CLINICO DE LAS CLOROQUINAS

Actualmente, se ha comprobado que las cloroquinas tienen efectos antireumáticos y que producen mejoría sintomática en algunos casos de artritis reumatoide, particularmente en aquellos enfermos en que se manifiesta el fenómeno L.E.

El fostato de cloroquina (Aralen) se da por la via oral en una dosis de 250 mgms. con la cena o al acostarse. Algunos enfermos manifiestan reacciones. Sin embargo, cuando desaparecen al descontinuar la droga, el tratamiento puede seguirse reduciendo la dosis a la mitad. Un porcentaje de un 5 al 15% tienen que parar la administración completamente. Una mejoría significativa aparece casi con seguridad después 6 meses de tratamiento continuo.

El plaquenil, es administrado en 2 dosis diarias de 200 mg. como tratamiento inicial y de sostenimiento. Esta droga se prefiere al aralen, ya que sus efectos tóxicos son el 50% del aralén y debe administrarse a las personas que no toleran el aralén. Bagnall lo administró a 28 enfermos que no podían continuar con un tratamiento prolongado de aralén; 17 de ellos mejoraron y 7 tuvieron toxicidad.

Aunque se puede suspender la administración de las cloroquina sin efectos desagradables, se susiere que no seden:

1. Cuando se usen sales de oro o concomitantemente con butabolidina.
2. A pacientes con intolerancia a la quinina.
3. A enfermos con soriasis, a enfermos del riñon o del hígado.

TOXICIDAD

Bagnall reportó que un 45% de hombres y un 64% de mujeres, experimentaron efectos tóxicos en mayor o menor grado al administrarseles 250 mg. de Aralén. Habitualmente, decreciendo la dosis fue posible controlar en estos grupos ed 32% de ellos, pero hubo necesidad de suspender la droga en un 5% de los hombres y en un 15% de las mujeres. Cohen y Calkins encontraron que tuvieron que suspender la droga en una tercera parte de los casos. Scherbel suspendió la droga en un 7% de los casos, LaTona y Norcross en 41 de 145 pacientes reportaron reacciones y en 13 fue necesario descontinuar la droga debido a:

- Anemia y lecuopen a.....1
- Trastornos visuales e
 infiltración corneal3
- Nausea y molestias G-I3
- Erupción cutánea4
- Cefalea y vértigo3

Las lesiones dermatológicas fueron las reacciones mas evidentes de hipersensibilidad. Fueron de varios tipos: máculo-papulares, purpúricas, liquenoides y otros. Generalmente aparecieron después de varios meses de administración de la droga y solo fue necesario disminuir la dosis para su control habiendo algunos casos en que se tuvo que suspender la droga.

Los síntomas gastrointestinales aparecieron en un 15-25% de los casos consistiendo en anorexia, nausea, vómito, ardor epigéstrico y calambres abdominales. En estos casos, la administración con las comidas o reduciendo la dosis permitió continuar el tratamiento.

Hay otros síntomas de toxicidad que ocurren ocasionalmente. Consisten en caída del pelo, encanecimiento, leucopenia, trastornos visuales y algunos trastornos neurológicos o mentales. La cloroquina se suspende habitualmente en estos casos.

Las reacciones son el 50% menos con el plaquenil. Freedman anoto que de 50 pacientes estudiados, ninguno presentó trastornos tóxicos de signifacación tomando 300 mg. de plaquenil diariamente por 2 años.

RESULTADOS

	No. de Pacientes	Mejoria notable	Menor mejoria	No mejoria
Haydu	28	22	5	1
Freedman	50	43	3	4
Cohen & Calkins	20	18		2
Rinehart:				
Adultos	14	4	4	6
Ninos	11	8		3
Fuld	39	31		8
Scherbel	60	36	20	4
Cramer	123	95	15	13
Lockie et al	154	59	28	37
Bagnall	150	100		
LaTona y Narcross	145	45		100

El grupo de las cloroquinas posee un efecto antireumático en algunos pacientes con artritis reumatoide. Es necesario tener una serie de experimentos mas controlados y mas prolongados para evaluar propiamente la actividad antireumática de estas drogas.

The Chemical Warfare Threat*

by

Colonel Victor C. Searle, U. S. Army†

Chemical agents, some of which are not detectable by human senses, can produce mortality and morbidity in large populations. Such materials can at present be produced in large amounts by any major power. Protective devices effective against some nerve gases will be produced commercially in 1961. Psychochemical drugs, capable of disrupting a military force without permanent damage, are being developed. Such temporarily disabling weapons would be most applicable in a non-nuclear war, especially a "limited" one. Means of early detection and treatment require urgent investigation; adequate defense necessitates nationwide knowledge of the available facts.

SVH

MY purpose today is to present to you certain aspects of the present threat against the United States and its Allies which is associated with the possible use of chemical weapons in warfare. I propose to do this by summarizing for you in general terms the military capabilities and hazards with respect to chemical weapons now generally known to exist; I shall then give you some glimpses of what future developments may be like in this field, and the problems that may arise.

To begin with, let me define my terms. From the military point of view, the term "chemical weapons" includes not only the well-known "war gases" as they are commonly called, but also the use of flame and smoke on the battlefield. I shall confine myself entirely to the so-called "war gases". This term in itself is inaccurate, since many of the chemical compounds concerned are not gases but rather liquids or even solids under ordinary conditions. However, the term has the sanction of established usage; everyone knows what it means; it refers simply to the large-scale use of toxic chemical agents for their direct cas-

ualty-producing effect on the individual after they have come into contact with his skin or been absorbed into his body.

The use of chemicals in warfare for direct action on the body of the individual soldier is by no means new, going back literally for thousands of years. The modern use of chemical weapons on the battlefield was initiated in World War I by the Germans, when in April 1915 they loosed a cloud of chlorine gas against the Allies in France. As everyone knows, the effects of this gas attack were profound and demoralizing, but were not exploited in such a way as to effect significantly the outcome of the war, and very shortly after the initial attack, chemical warfare was raging with equal intensity on both sides of the battlefield.

An interesting aspect of the use of chemicals in World War I is the number and variety of different chemical compounds which were used or even considered. A partial list of these substances is shown in Table 1. In general, one may say that each side was attempting to surprise the other side with a new and more potent chemical for which existing defenses were inadequate. Note particularly that a number of promising

*Presented at the Medical-Health Section, Ninth United States Civil Defense Council, Minneapolis, Minnesota, 21 September 1960.

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chemical agents did not reach the stage of battlefield availability during World War I, largely because sufficient quantities had not been produced by the time the war ended.

Research on chemical warfare agents did not stop after World War I. Some of this research resulted in the discovery of vastly improved chemical warfare agents, particularly in Germany, as we shall see. Much of the research resulted in the elimination of all but a handful of chemicals as being of practical battlefield significance. At the time of World War II, for example, the only chemicals considered to be of practical significance to the United States and its Allies included the mustard gases (both ordinary or sulfur mustard and the newer nitrogen mustards) phosgene and related compounds, and, for specialized use, hydrocyanic acid.

However, the Germans had made a secret and startling advance in chemical warfare, not discovered until after World War II was over. This was the discovery by the German scientist, Schrader, of the "nerve gas" type of compound, in 1939, during a routine search for more effective insecticides.

The term "nerve gas" refers to a group of highly toxic chemical compounds, which are generally organic esters of substituted phosphoric acids. They are anticholinesterase agents closely related in their effects to commercial insecticides such as Parathion and Malathion.

The compound known as Tabun is the nerve gas which the Germans had available in quantity during the closing years of World War II. A large German plant for the manufacture of Tabun was captured by the Russians and has been moved back to Russia, where presumably it is in operation today.

The second of the two nerve gases shown, Sarin, which is known to us as "GB" was not available to the Germans in quantity during World War II. Much research on the nerve gases after the close of World War II led to the decision that Sarin was superior to Tabun for military purposes. It has been exhaustively investigated with respect to its possible effects on the battle field.

The nerve gases introduced several new elements into the war gas picture. The first of these was a significant increase in lethality over previously known chemical agents. This increase in lethality is at least one order of magnitude or more over that of previously known chemical agents. With such an increase in potency available, it became possible for the first time to consider seriously the dissemination of chemical agents in other than local tactical situations, i.e., delivery by aircraft or missiles at long range. Such long range delivery of toxic chemical weapons must now be considered to be a real threat, one which did not exist prior to the discovery of the nerve gases. Furthermore, this threat may well increase in intensity as even more potent chemical weapons are discovered, as they most surely will be with continued research in this field.

It is sobering to realize that any major military power can manufacture GB or a comparable material at the rate of hundreds of tons per day. GB is a liquid, but a volatile liquid. When disseminated as a military agent, it will usually appear in a vapor form — a true "gas". The major portal of entry is inhalation. It can also enter by contact with the eyes. Consequently, an effective mask offers essentially complete protection. So long, however, as the civilian population is not possessed of individual masks and the training to use them, GB poses a serious threat. A single large enemy missile could disperse enough GB to produce at least 30 per cent casualties among all unmasked personnel in the open over an area one mile in diameter. By "unmasked" I mean people who are not actually wearing their masks when the attack occurs but are carrying them or have them nearby. A one mile circle over a metropolitan target would encompass many thousands of people.

Now a new development has come along to confuse the picture. Anticholinesterase toxics of low volatility are available. When deposited on the skin these compounds do not evaporate and blow away (relatively harmlessly to a masked individual), but they penetrate effectively. They are highly toxic. The exposed skin of the back of the hand, or even a single ear lobe, is a sufficient portal of entry. The deposition may be made in the form of a tiny, but visible droplet,

which goes unnoticed, because it is quite painless, and symptomless except systemically. Or the deposition may be in the form of impaction of a subvisible, fog-like aerosol.

A second new element in the chemical warfare picture is due to the fact that the nerve gases are generally colorless, odorless or nearly so, and are readily absorbable through not only the lungs and eyes but also the skin and intestinal tract without producing any irritation or other sensation on the part of the exposed individual. Prior to the advent of the nerve gases, practically all chemical agents which might be expected on the battlefield were recognizable by a characteristic odor or irritation so that detection of exposure was possible almost simultaneously with the exposure itself, and protective measures could be instituted immediately.

With the nerve gases, the lack of ability of the human senses to detect their presence, and the possession of such potency so that even a brief exposure may be fatal, has created entirely new defense problems. It is clear that if we cannot detect these agents by our senses we must turn to the chemist and engineer for chemical and physical methods of detection; these detection measures must be available for large area coverage as well as for the use of the individual in a contaminated environment; they must be highly sensitive and specific, rapidly acting, and if possible automatic and continuous in operation. Paralleling the development of such warning devices must come an improved efficiency in individual protection, not only for the familiar respiratory protector or "gas masks", but also for the protection of the entire body area of the individual. At the same time we must recognize that even the most adequate warning and protective devices will not entirely prevent the production of nerve gas casualties, and a strong medical research program on prophylaxis for and therapy against poisoning from the nerve gases must be vigorously and successfully prosecuted if we are to minimize the threat from these new and extremely potent chemical weapons.

Let me digress for a moment to review the status of physical protective equipment for the civilian population. I should emphasize that the

items I shall discuss furnish full protection against biological attack via the respiratory route as well as against chemical agents.

The OCDM organizational mask now known as the CDV-800, is very similar to the military mask. It is intended for civil defense workers who must continue to function and carry on outside activities during a BW or CW attack. OCDM and the State and local civil defense organizations have some 42,000 of these organizational masks in their supply system.

For the general population, the Chemical Corps has developed, under OCDM auspices, the civilian protective mask to be known as the CDV 805. The protection it affords is fully equal to that of the organizational mask but it is somewhat less rugged and less comfortable to wear under conditions of heavy physical exertion. It would be expected to withstand fewer attacks with a given agent than the larger mask which carries more charcoal.

The current OCDM budget for FY 1961 carries funds for production testing, and tooling-up for this mask. OCDM plans contemplate that it will be manufactured and distributed commercially for purchase by the individual. The price should be in the range of \$2.50.

These masks come in six sizes which will fit all persons from four years old and up. For children younger than that an infant protector has been developed, also by the Chemical Corps. As you can see, this is similar to a small tent with plastic windows and panels of filter material. It is still under engineering test, and will become available somewhat later than the protective masks.

So much for individual protection. It is also possible and essential to protect individuals in groups, as in shelters. Filters and equipment have been developed for protecting large installations where power is available for ventilation. In effect, these filters simply constitute large scale protective masks for rooms or building spaces rather than for individual people. A unit consists of particulate filters to screen out BW particles and activated charcoal filters for removing chemical agents.

Present OCDM policy requires that all new Federal buildings have provisions for installing these filters as a later date and the same policy is recommended for State and local governmental agencies and industrial centers.

As I said, these depend upon continuing sources of power. At present there are no comparable units available for incorporation into the home fallout shelters which are being recommended. This problem is under study by OCDM, however, and it is hoped that before too long such units will be commercially available and adapted to hand-blower operation.

We cannot afford to ignore the real possibility that even more powerful chemical weapons than the nerve gases remain to be discovered. There are many toxic substances known today which are more lethal on a weight basis than any of the nerve gases. Some of these substances can be made in the laboratory. Others have been found in nature. Among the compounds which can be made in the laboratory, one of the more interesting is a complex aryl carbamate synthesized some years ago by French investigators(1).

This substance has a lethal dose in the mouse and in the rabbit which is only about 1/10 that required for the nerve gas, GB.

While it is doubtful that the compound in question will ever be of military significance for a number of reasons, among them being the complexity of the molecule and its difficulty of synthesis, the point is that the chemist knows about and can synthesize lethal chemical compounds which are far more potent than the nerve gases. There is no reason to expect that research will stop at this point; on the contrary, we should not blind ourselves to the real possibility that the nerve gases will become as obsolete in the future as they have rendered obsolete many of the chemical agents of World War I and World War II.

I should now like turn my attention to a second type of chemical weapon, one which is rather new but which has already attracted considerable military interest throughout the world. I refer to the large-scale use on the battle field of chemicals which are not basically lethal in themselves but which produce a temporary and re-

versible incapacitation, as for example by producing temporary mental confusion, temporary anesthesia, narcosis, paralysis, temporary blindness. Such chemicals used in conjunction with other non-nuclear arms could contribute to the success of a military operation, with a significant reduction in loss of life — particularly in comparison to the casualties associated with nuclear use. An example of a situation where non-lethal weapons might be of considerable significance is found in so-called "limited" wars, or less than total wars, where military operations are limited in scale, area, participants and degree of violence. In such wars it is desirable to stamp out the aggression at the earliest possible moment and with minimum loss of life and property.

In these circumstances, the incapacitating agents might be a usable discriminating force which, in support of other non-nuclear weapons, could make the attainment of battlefield objectives much simpler for the nation employing them.

One might ask at this point whether or not chemical compounds exist which can produce temporary incapacitation to a degree which will be militarily significant, without a high lethality. Two examples will be cited. In its recent report entitled "Research in CBR (Chemical, Biological and Radiological Warfare)", the Committee on Science and Astronautics of the U. S. House of Representatives referred to demonstrations of drugs which incapacitate by both physical mechanisms and mental mechanisms. In this latter class, commonly referred to as "psychochemicals", reference was made to the well-known drug lysergic acid diethyl amide, or LSD 25, as it is more commonly known. This drug will be discussed shortly. The House report also cited a statement by Maj. General Drugov, of the Soviet Army, to the effect that "special interest attaches itself to the so-called psychic poisons (mescaline, methedrine, lysergic acid derivatives) which are now used for the simulation of mental disease."

Let us look at the chemical nature of some of these compounds. Mescaline, one of the compounds mentioned by General Drugov, is a compound of rather simple chemical structure, found naturally in mescal buttons, a portion of a small

cactus plant used as a stimulant and mild intoxicant, particularly by Mexican Indians in certain ceremonials.

The pure material produces in man a profound hallucinatory condition at dose levels of approximately 30-50 milligrams per man. However, the relation between chemical structure and psychochemical activity is not at all understood as yet, and there is no reason to believe that further research on the relatively simple mescaline molecule may not yield compounds into the same pharmacological action which are more potent on a dosage basis than is mescaline itself. If such more potent compounds are found, they may well prove to have practical military significance.

Among the lysergic acid derivatives, also mentioned by General Drugov, lysergic acid diethylamide or LSD 25, has attracted considerable attention, particularly in the field of experimental psychiatry. This substance is a synthetic compound first made by Stoll & Hofmann(2) almost 20 years ago. The synthetic process consisted in the preparation of the diethylamide derivative of the naturally occurring lysergic acid, which latter is obtainable from ergot. LSD 25 is an outstanding example of a psychochemical drug, i.e., one which exerts its action entirely or almost entirely on mental processes. In very small doses, of the order of 1/20th to 1/3rd of a milligram, the drug produces in man such an extreme degree of mental confusion that the individual is for all practical purposes incapable of carrying out his normal duties. The effects may last for a number of hours, depending largely upon the dose given, and then wear off completely, leaving no discernible after-effects. The lethal dose of LSD 25 in man is not known, but on the basis of animal experiments it is estimated to be from 100 to 1000 times as high as the biologically effective dose.

You will have noticed that the compounds cited as examples of incapacitating, essentially non-lethal, chemical compounds which might be of military significance are all characterized predominately by action on mental processes. There are many other mechanisms which may be exploited as the basis for incapacitation on the battlefield. Some of the more obvious mechanisms

include temporary paralysis, either partial or total; controllable narcosis or sleep-inducement; reversible and temporary elimination of the sight, the hearing, or the sense of balance; persistent lachrymation, diarrhea, or vomiting; temporary convulsive spells; and other mechanisms will no doubt suggest themselves. We must be aware of the fact that drugs are known at the present time which can produce any of the effects cited, frequently at a very low dosage. The existence of these drugs is by no means a guarantee that they have battlefield potentiality, but it may not be too difficult a step to convert known drugs into military weapons by the use of an intensive research and development program directed towards this end. It should be recognized that the deliberate search for chemical weapons of the type I am describing is relatively recent, and has not in the past been one of the primary objectives of either the drug industry or of military research laboratories. Now that the possible significance of weapons of this kind is realized, it is almost impossible to predict what may appear in the future, but it should be clear to all that many new and interesting developments may well be expected in this field.

We cannot afford to ignore the problems which may be posed by the military use of non-lethal incapacitating chemical weapons, either overtly or covertly. The wide variety of drugs which influence either the mind of man or his body represent an ever increasing challenge to our ability to discover such drugs, to determine how they act, and to erect defenses against them.

In summary, then, this is the CW threat. The more potent chemical weapons of previous wars are still available, with established manufacturing and delivery capabilities on the part of any large nation which chooses to use such weapons. In addition, there are the newer and far more powerful nerve gases, likewise associated with established manufacturing and delivery capabilities. The lack of ability to detect the presence of nerve gases by the senses, and their high potency and speed of action, stresses more strongly than ever before the need for suitable means for detecting these agents, for protection against their effects, and for the treatment of casualties therefrom should these occur. Furthermore, there is no reason to believe that the limit of

potency in lethal chemical weapons has been reached in the nerve gases, and a continuous research program, looking well beyond the potency limits of the nerve gases, is essential if we are to keep up with the scientific and technological progress which will undoubtedly occur in this field, as it does in all other areas of science and technology.

Furthermore, we have considered briefly a relatively novel concept of chemical compounds in warfare, namely the use of incapacitating non-lethal drugs, which may affect either the mind or the body of exposed personnel in such a way as to contribute significantly to military success for the nation employing such compounds on the battlefield.

I have indicated to you that the defensive problems are formidable, and urgent. To meet the CW threat, it is imperative that all elements of our population be aware of the existence and magnitude of this threat, and be alert and responsive to the provision of means for defense against this threat. Such means include an active civil defense organization, readily available means for use in defense against chemical agents, and support of a vigorous research and development program on chemical agents to provide for the continuing awareness of new elements of danger in this important weapons area, thus to be better prepared than we are now for the use of chemical weapons against us.

TABLE 1
PARTIAL LIST OF DIFFERENT CHEMICAL
COMPOUNDS WHICH WERE USED OR
CONSIDERED IN WORLD WAR I

TEAR GASES

Ethyl bromoacetate
Chloroacetone
Xylyl bromide
Benzyl bromide
Bromomethyl ethyl ketone
Bromoacetone

Iodoacetone
Ethyl iodoacetate
Benzyl iodide
Acrolein
Bromobenzyl cyanide
Chloroacetophenone

CHOKING GASES

Chlorine
Methylsulfuryl chloride
Chloromethyl chloroformate
Ethylsulfuryl chloride
Dimethyl sulfate
Perchloromethylmercaptan
Phosgene
Perchloromethylmercaptan
Phosgene
Trichloromethyl chloroformate (diphosgene)
Chloropicrin
Phenylcarbylamine chloride
Phenyldichloroarsine
Dichloromethyl ether
Ethyldichloroarsine
Phenyldibromoarsine
Dibromomethyl ether

BLOOD POISONS

Hydrocyanic acid
Cyanogen bromide
Cyanogen chloride

BLISTER AGENTS

Dichlorethyl sulfide (mustard gas)
Chlorovinylchloroarsine (Lewisite)
Methyldichloroarsine
Dibromoethyl sulfide

VOMITING GASES

Diphenylchloroarsine
Diphenylcyanorarsine
Ethylcarbazol
Phenarsazine chloride (Adamsite)

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Ambroise Paré

Surgeon of the Renaissance†

Paul J. Matte, M.D.

Phoenix, Arizona

IN ABBREVIATED and superficial works on the history of medicine are found such statements as these: "Ambroise Paré was the greatest surgeon of the Renaissance," or, "Paré is the Father of Modern Surgery"; and both of these he was, but the manner in which he became so is worth a moment's consideration. For, as the Renaissance itself did not burst fullbloom upon the stage of history, neither did Paré single-handedly effect a renaissance of surgery. He was born in 1510, when the Renaissance had already been in progress a respectable period of time. And he stood upon the shoulders of his immediate predecessors to attain the eminence which was later his. His innovations were few in number, and those advancements usually attributed to him were anticipated, and indeed, even published, by others who went before him. Of his manual skill in surgery we know little . . . in his writings he seems at times almost to depreciate this attribute of the surgeon, saying: "I had my servant do this," or "in order to give him experience, I had my apprentice do that." He invented no instruments*, using those which came to his hand from the armamentarium of the surgeons of the time. By the standards of his day he was ignorant, knowing nothing of Greek, and little of Latin. He was perhaps the most unlikely of men to have attained the greatness which was later his. And yet, with all these negative attributes, he *was* the greatest surgeon

of the Renaissance period, and he *was* and *is*, the father of modern surgery.

Let us see, then, how this came about. Someone has said that it is not men who make the times, but the times which make the man, and, as we shall see, the world, and particularly the world of medicine, was waiting and ready for Paré, when he came upon the stage.

He was born, as has been said, in 1510, and his contemporaries, if not his associates, were names of undisputed greatness. Leonardo, Michaelangelo, Vesalius, Montaigne, Rabelais, Luther, Calvin, and others of equal stature. It is believed that he knew Vesalius, and to him and to Leonardo, owed much of his knowledge of anatomy. He was caught in an intellectual, an artistic, and an anatomical stream of a power which the world has not known before or since; the world was ready for Paré and his work, and it is to his everlasting glory that he did not let the chance go by.

He was born in France, in the city of Laval, of a family which we would now consider middle or lower middle class. His father was a barber and *valet de chambre** to a member of the lesser nobility, and his brother-in-law was a barber surgeon, practicing in Paris. Although the details are not available, Paré is believed to have begun his medical career by working with a

*He developed but did not invent an obstetrical forceps, with four hooked blades on the fetal end, of rather horrendous appearance.

†Read before the Phoenix Society for the History of Medicine, Sept. 30, 1960.

*Singer (1) states Paré's father to have been a boxmaker. I have been unable to reconcile this conflict of authorities.

provincial barber surgeon, until he entered an apprenticeship to a barber surgeon in Paris in 1533, when he would have been twenty-three years old. He was thus, at this time, almost as low in the medical hierarchy as it was possible to be.

For the medical profession in France in the 16th century was organized into several classes, mutually antagonistic. There were, at the very bottom of the pyramid, itinerant and irregular practitioners, more or less adept at certain manual procedures, such as the lithotomists, the sowgelders, and the bonesetters, coequal with the midwives and *sage femmes* of the day. Next above these came the barber surgeons, who had the advantage of a guild, certain standards, and a tradition of manual competence. Their social status was roughly that of tradesmen or journeymen. In an interesting parallel to our own day, the barrier which separated these lower groups from the higher was that of a University education, represented essentially by a knowledge of Latin and Greek. It was this lack, of which Paré was himself acutely aware, as his writings abundantly show, that was responsible for most of his later difficulties with the organized medicine of his time, and which was indirectly, a major factor in his later greatness. For, as Paré himself points out in his *Apologie and Treatise*(2), the reason for his ignorance of classical languages was that he was much too busy in his youth learning surgery the hard way; and it was his lack of Latin which forced him to write of his discoveries and controversies in the vernacular, and led to the great reputation which was his in his own lifetime.

Someone has said, in this connection, that had Paré known Latin he would never have written his treatise on obstetrics, or, had he written it in Latin, none of those for whom it was intended would have been able to read it, since obstetrics was in those days in the hands of the midwives, mostly, and the barber surgeons occasionally.

In any event, we find Paré, at the age of twenty-three, at work in the lower ranks of Renaissance medicine — at this time actually medieval medicine — devoid of a college education, and apparently forever doomed to

mediocrity.

Next above him we find the Surgeons of the College of Saint Come, the surgeons of the long robe, as the barber surgeons were the surgeons of the short robe. These Surgeons of the College were University graduates, and knew their Latin and Greek, and in a fashion reminiscent of our own, were continually engaged in intellectual and political controversy with the physician members of the Faculty of Medicine of the Sorbonne, who looked down upon them as their social and intellectual inferiors. The Surgeons of the College limited themselves to superficial applications and manipulations, and to minor surgery, all wrapped in much medieval theory and quoting of Aristotle, Galen and other ancient authorities. Unfortunately, though they knew their Latin, they knew little of actual surgery, considering such messy, pragmatic matters as amputations as beneath their position. It is difficult from our viewpoint to see that they served any function at all, and this seems to have been Paré's attitude in his early writings. And we begin here to see shaping that battle which was to occupy Paré, between wars, for the rest of his life.

For reasons which probably had to do with his innate talents, Paré did not remain long an apprentice. About 1534 he was appointed a resident surgeon in the Hotel-Dieu, the only public charity hospital in Paris. This was an appointment much sought after, and his selection for the post seems to have been the first professional recognition of Paré's inherent ability. He remained about three years, and as surgeons of today speak for the rest of their lives of their days as house officers, Paré in his writings refers frequently to the experience gained in what was in effect his residency.* It is believed that he left the Hotel-Dieu qualified for but financially unable to open a practice, probably because he could not raise the necessary license fee. It is, at this point, and by the fortunate circumstance of his poverty, that Paré first comes upon the scene of medical history.

Reference to any history of the Sixteenth Cen-

*One of Paré's few faults seems to have been a reluctance to give credit where credit is due. There is in his works no specific mention of his teachers at the Hotel-Dieu, although their names are known from other sources. And it was not until later editions that he credited his fellow barber surgeon de Heiry with co-authorship of the work on anatomy.

tury will show this period to have been one of continuous religio-political wars, as adherents and claimants to the French, Spanish and Italian thrones fought for the control of Europe, in the political chaos resulting from the collapse of the Holy Roman Empire.

It was the custom at that time for the leader of an army, most commonly a member of the nobility, to provide himself with a surgeon or surgeons, primarily for his own protection and only secondarily for the care of his men. Much of Paré's early reputation derived from the fact that he, a surgeon to the officers, should trouble himself with the care of the wounded common soldier. Space does not permit a digression into the history of warfare, but it should be noted that armed combat in the Sixteenth Century afforded more brutal and intimate contact between the participants in a battle, in association with the close-up use of primitive firearms, than history has offered before or since, with the possible exception of our own Civil War.

For these Sixteenth Century warriors were caught in the transition from chain mail, personal armor, pikes, lances, halberds, and maces, to the use of firearms, with the burns, concussion and miscellaneous trauma of primitive bombards, harquebuses, and cannon, using unstable and primitive gunpowder in a combination equally dangerous to friend and foe. The result was a variety and severity of wounds unequalled in the history of medicine until the advent of the modern motor vehicle.

Paré's case reports can give a modern surgeon pause, as he describes such problems of burns complicated by pieces of mail driven into the wound by the primitive weapons of the day.

It is an adage older than Paré that the battleground is the true school of the surgeon; and it is a circumstance unique in the history of medicine that Paré was for almost forty years continuously engaged as a military surgeon, in attendance upon the French kings and commanders of the period.

And so Paré's fame rests like a stool, upon three legs, two of which we have already seen: he was born at the right time and in the right place and was spared the intellectual stagnation

of a classical education; he was afforded the opportunity of a surgical experience such as no surgeon has had before or since; and lastly, he wrote of his experience and the lessons he had learned. For, had Paré not been a writer, and a competent one, and had he not written in the vernacular, we should know little of him today, and his influence would have been less, and surgery the poorer. But write Paré did, prolifically, pragmatically and polemically, over a period of forty years.

It was following his second campaign, and most probably at the instigation of Sylvius, of cerebral aqueduct fame*, that Paré wrote and published his first book. The title bears repeating, for it sets the tone of all his later works: *"The Method of Treating Wounds Made by Harquebuses and Other Firearms: and of Those Which Are Made by Arrows, Darts, and Similar: Also of Burns Made Specially by Gunpowder."*(3) In 1549, between wars, he published a treatise on Anatomy and Osteology, after one or two years of intensive study of the subject, in which he worked with a fellow barber surgeon to dissect the whole of one side of the body of a criminal. He later claimed to have kept the body and its organs preserved for study and in good condition for twenty-seven years. This anatomical treatise is noteworthy for an appendix which contains accurate and adequate instruction for the obstetric operation of Podalic Version, for which Paré claims no originality, but which he is usually credited with bringing into use.(9)**

His next publications were in 1561, several wars later, although he had obviously been working on them for some time. These were: *"The Method of Curing Wounds and Fractures of the Human Head,"* and *"Universal Anatomy of the Human Body."* Three years later, following the sieges of Bourges and Rouen, he published his most important work, so far as the furtherance of practical surgery was concerned, the *"Ten Books of Surgery, With the Kit of Instruments Necessary to It."* This was a veritable course in surgery, the first volume containing the general attributes of the surgeon, and the basic principles of the art. Others deal again

*As might be expected, Sylvius did not discover this structure. He merely described it louder than anyone else. His most striking claim to fame is as the teacher of Vesalius(4).

**A few years after his death, Paré's daughter was seen successfully through a difficult delivery by one of Paré's pupils who stated that the successful outcome was due to Paré having supervised him in the management of a similar case years before.

with gunshot wounds, and with the use of the ligature in amputations, another innovation — actually a rediscovery, which is usually credited to Paré. The book was written in the vernacular, and when Paré was criticized for having done so, and efforts were made to suppress it, he again pointed out, quite reasonably, that he had written it for the education of young surgeons, and that if it were in Latin those for whom it was written would be unable to read it. Other books followed, but it was the publication of the *Dix Livres* which led to the controversy which was to occupy Paré for the remainder of his professional life. It had been simmering for several years, and now came to a boil.

As a result of his early campaigns, and his successful treatment of war-injured noblemen, Paré had come by 1554 to occupy the position of court surgeon. Just which and what court is at times a bit difficult to say because of the complex political intrigues of the day, but his principal patron for many years was Henry of Navarre, afterwards King Henry IV of France. In this capacity he was continually on loan to various lesser monarchs of France, depending on who was doing the fighting at the time. Some insight into his remarkable personality is found in the fact that he at times functioned as a diplomatic emissary for his patrons. The most interesting of his accounts of these political activities is found in his report of the Siege of Metz, found in his "*Treatise and Apologie*." (3)

By 1554 his prestige and reputation were such that the surgeons of the College of St. Come, in essence the Royal College of Surgeons, felt the necessity of having him as a member. In this the surgeons of the College appear to have been motivated less by an admiration for Paré than by the necessity for reinforcements in their battles with the Faculty Physicians above them and the Guild of Barber Surgeons below them. (1) And so, in spite of his deficiency in classical languages, Paré was passed through the formalities of initiation without examination, and without the usual fees. What Paré thought about all of this is not exactly known, but it is certain that the change from the short to the long gown of the university surgeon did not alter him in any particular way.

From what we can deduce of Paré's charac-

ter, the entrance of this pragmatic and superlatively competent surgeon into the rarefied and scholastic atmosphere of the College of Surgeons of the Sorbonne could have produced nothing but conflict, and so it did, for the next ten years. He was attacked and vilified by various members of the Faculty of Medicine as an ignorant charlatan, and in 1572, published his *Five Books of Surgery*,* dealing chiefly with fractures and dislocations and answering the virulent attack of one Julien de Paulmier, who, in a book written in 1569, had questioned Paré's treatment of gunshot wounds. Various books followed, dealing with monsters, plague, and surgical procedures. (1) And in 1575, following the publication of his collected works, Paré was in effect sued for malpractice, by being hauled up before the ethical committee of his society on the charge of writing in the vernacular and publishing without the approval of the Faculty, under an old ordinance. This charge was pressed by one Gourmelen, a physician of the Medical Faculty of the Sorbonne, and it is a sad commentary on human nature that it was supported by a majority of Paré's colleagues of the College of St. Come. Although Paré was found guilty, no action was taken, and his book was not suppressed.** He continued to function as medical attendant to the King under the title "First Surgeon of the King," and in the third edition of his works in 1585, published his *Apologie and Treatise* which is a reply to his accuser, in the form of a debate, and contains the biographical record of his experiences in the wars from which he acquired his vast knowledge.

It was in connection with his activities in medical politics that Paré suffered his only personal defeat. In 1567, by virtue of his membership in the College of St. Come and his position as First Surgeon of the King, he tried to bring all those who practiced surgery in France under his control, instead of under that of the Premier Barber Surgeon. This aroused great opposition, and he was forced to abandon the effort.

Most of what we know of Paré the man is gleaned from his last work, the *Apologie and Treatise*. It was written in 1585, when Paré, no

*The bibliomaniac will be interested to know that there is no known copy of this *Cinq Livres* in existence.

**There was some justification to this charge. As he gained in experience and prestige, Paré had begun to write on purely medical matters. In the highly-specialized 16th Century, this was bad manners if nothing else. (1) (3)

longer actively engaged as a military surgeon, was nearing the end of his life. It is a remarkable work, containing as much of politics and history as of surgery. It has been described as "the most entertaining surgical treatise ever written," and is in truth a difficult book to put down. Paré wrote his apology in answer to the charges of malpractice leveled against him by the Faculty of Physicians, in the person of Étienne Gourmel-en. In the book, Paré undertakes first to demolish his opponent, and second to prove his own merit by a recital of his experiences and successes. It is a work necessarily egoistic, as any autobiography must be, but there is nothing false about it, and between the lines comes to life the figure of a man of intense practicality and profound common sense; of vast experience and the obvious ability to learn from it. The case histories of traumatic injury are superlative in detail and diagnostic acumen. There is little difficulty in making a diagnosis in modern terms from the information supplied by Paré. With respect to clinical detail and prognostic acumen he must be admitted the superior of Hippocrates, who is sometimes maddeningly vague.(7)

Those familiar with the works of both Hippocrates and Paré cannot but be struck by the similarity of the two men in approach and mode of thought. It is also apparent that we have in the two of them the archetype of the physician and of the truly great surgeon. Hippocrates observes, asks questions, makes deductions of a general nature, prognosticates, and as often as not, does nothing to alter the course of the disease. Paré, confronted with a surgical problem, draws upon his experience, reaches a conclusion as to the probable outcome of the situation, and proceeds to apply pragmatic remedies. In contrast to Hippocrates, he is not unwilling to undertake the losing battle, (cf. his clinical record of the severe chest injury of one Lord Martigues*). There are, however, points in common between the two. Each had little patience with unproved theory, or that which did not accord with the facts. But whereas Hippocrates seems happiest when dealing with generalities, and in formulating his own theories, Paré is at his best with the individual case, and with his hands in the gore. To Hippocrates and his school is usually attributed the invention of clinical observation as the foundation of medical science, and

the deduction of principles therefrom. If the Renaissance was in truth a rebirth of the scientific approach and the rediscovery of ancient principles, then Paré is the only and logical successor to Hippocrates. Not excepting Galen, there is no one in between.

Some idea of the force of Paré's influence upon modern surgery can be gained by a comparison of his techniques with those in use in the pre-aseptic era of the late 19th Century. In the French school particularly, the similarities are startling.(5)

No introduction to Paré can be complete without quoting the experience of his first campaign, in which, characteristically, he made his first important discovery. The excerpt serves also to give the stranger to his writings the flavor of Paré. (*Voyage of Turin, 1537*)(8) (2).

" . . . Now at that time I was a fresh water souldier, I had not yet seene wounds made by gun-shot at the first dressing. It is true, I had read in *John de Vigo*, in the first booke of wounds in generall, the eighth chapter, that wounds made by weapons of fire did participate of Venenosity, by reason of the powder, and for their cure commands to cauterize them with oyle of Elders scalding hot, in which should be mingled a little Treackle; and not to faile, before I would apply of the sayd oyle, knowing that such a thing might bring to the Patient great paine, I was willing to know first, before I applyed it, how the other Chirurgions did for the first dressing which was to apply the sayd oyle the hottest that was possible into the wounds, with tents and setons; insomuch that I tooke courage to doe as they did. At last I wanted oyle, and was constrained in steed thereof, to apply a digestive of yolkes of egges, oyle of Roses, and Turpentine. In the night I could not sleep in quite, fearing some default in not cauterizing, that I should finde those to whom I had not used the burning oyle dead impoysoned; which made me rise very early to visit them, where beyond my expectation I found those to whom I had applyed my degestive medicine, to feele little paine, and their wounds without inflammation or tumor, having rested reasonable well in the night: the other

**Voyage of Hesdin, 1553.* (1) (3) (9)

to whom was used the sayd burning oyle I found them feverish, with great paine and tumour about the edges of their wounds. And then I resolved with my selfe never so cruelly, to burne poore men wounded with gunshot."

There has been much speculation of Paré's philosophy, and of his religion. It is characteristic of Paré that for all his involvement in the religio-political intrigues of the time (someone has referred to his ability to keep his footing on the slippery ground of Renaissance courts), that it is not known definitely to this day whether he was a Protestant or a Catholic. It is generally believed that he followed the outward forms of Catholicism as the occasion required, but was by conviction probably a Protestant.(1) One of the legends of Paré has it, apparently with accuracy, that his last patron, Charles IX, a Catholic, protected Paré from those who sought to destroy him as a Protestant, and went so far as to save his life during the Saint Bartholomew's Night massacre of 1572, by hiding him in the royal bedchamber.(6)

Although many attempts were made on his life, and he was often in danger during his many campaigns, Paré seems to have led a charmed life, and relates only two incidents of significant trauma. He was once given poison,(9) but discovered it in time to apply an emetic and antidote; and he sustained, ironically between campaigns, a compound fracture of the leg from the kick of a horse. This last episode is of particular interest inasmuch as the usual treatment for such

injuries, as late as our own Civil War, was amputation. The details of his treatment are, alas, lacking, but Paré demonstrates the typical surgeon's interest in the integrity of his own person, and recovered without less of the extremity.

It is pleasant to relate that Paré attained in his lifetime rewards commensurate with his ability, and lived to retire a comfortably wealthy man. He emerged from his retirement in the last year of his life to intercede with the Archbishop of Lyons to end the suffering of the populace of Paris by surrendering to the city's besiegers, a plea which was granted.

He died in 1590, and was buried in the Church of St. Andre des Arts. His statue in Paris contains the essential philosophy of Paré, in an inscription familiar to every medical schoolboy:

Je le Pansay, Dieu le Guerit
or
I dressed his wounds and God healed him.

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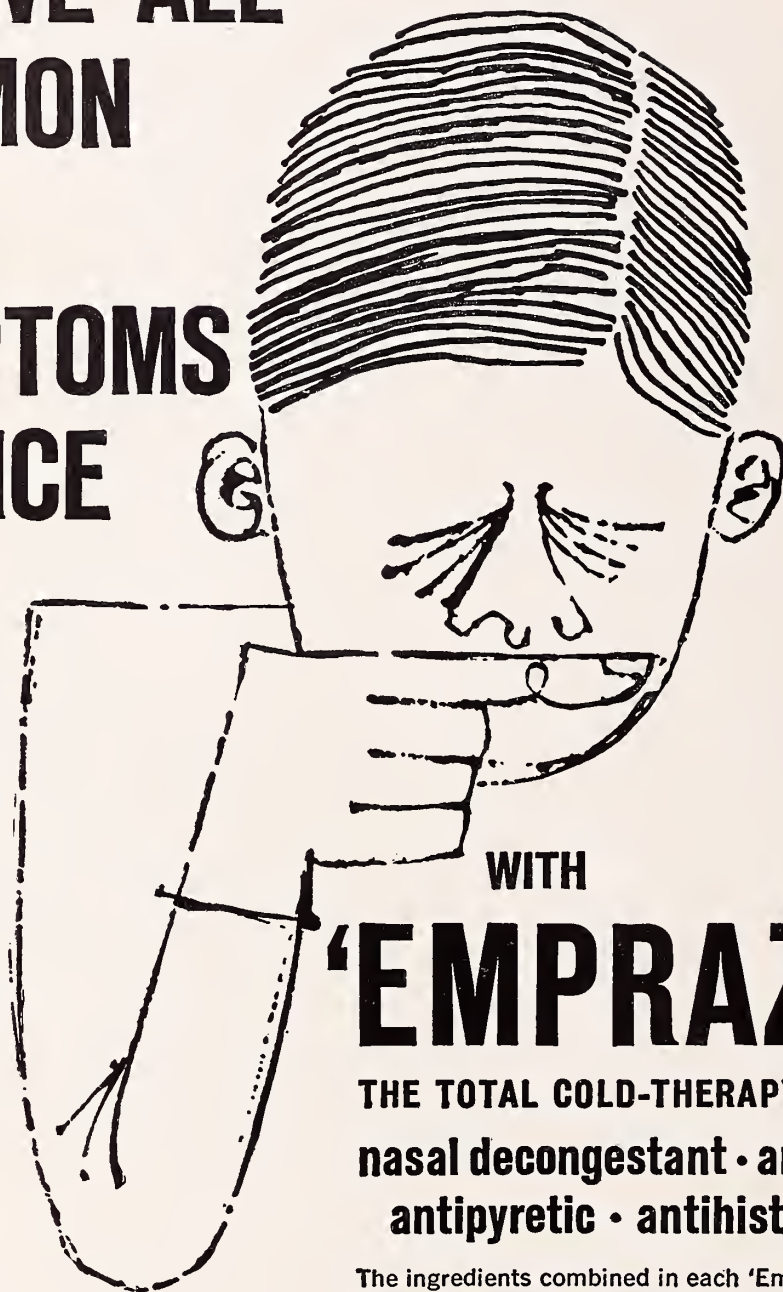
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The President's Page

The Education Of Politicians

Lindsay E. Beaton, M.D.



Lindsay E. Beaton, M.D.

There may be no more dangerous fact in the Twentieth Century than the fundamental ignorance of science of men who are charged with the responsibility of governments. The archaeologists of the future who try to puzzle out the reasons for the dissolution of Western Civilization may well conclude that it collapsed because it did not make use of the scientific and technical knowledge available to it. This is

not an eccentric personal hyperbole; it is the considered opinion of the American Association for the Advancement of Science, the voice of the great majority of the country's scientists. The AAAS Interim Committee on the Social Aspects of Science four years ago noted that, "There is no impending crisis in the relationships between science and American society. This crisis is being generated by a basic disparity. At a time when decisive economic, political, and social processes have become profoundly dependent on science, the discipline has failed to attain its appropriate place in the management of public affairs." Updating the earlier report, in a recent statement in *Science* by the AAAS Committee on Science in the Promotion of Human Welfare it is decided that, "In the last few years the disparity between scientific progress and the resolution of the social issues which it has evoked has become even greater.

What was once merely a minor gap now threatens to become a major discontinuity which may disrupt the history of man." What is true of science as a whole is also true of one of its principal divisions, medicine. There is an equal ignorance of medicine by public men, an equal failure of medicine to attain a substantial role in the management of American society, and a widening gap between medical learning and its use by the directors of the political state.

No responsible observer will deny that our culture depends not only for its coloring but for its very existence on the disclosures of science and the applications of technology. Even those who deplore the actuality admit it with varying degrees of bitterness. We find ourselves in the midst of a social mutation that dwarfs the industrial revolution and is comparable only to such momentous landmarks on man's pathway as his descent from the trees or his discovery of agriculture.

In view of these realities it is startling and alarming that there is not only illiteracy about but also vast prejudice against science. Evidences and explanations are not needed in this place. Probably such anti-scientism is a form of general anti-intellectualism. In the health field this benighted bias is particularly virulent and particularly fearful. One needs only to call attention to the acceptance of such absurdities as Wilhelm Reich's orgone box, once believed in by as eminent an intellectual as Arthur Koestler, Hubbard's dianetics, various cancer cures, honey and vinegar for arthritis, or the strange and wonderful nonsense of chiropractic and naturopathy.

The politician becomes a special case in point. He presents this particular problem for scientific indoctrination because his position of lead-

ership in either the executive or the legislative branch of government makes him the contriver of the regulations under which the citizens will live. If the politician has no acquaintance with the principles of science, what it is, what it can do, and what it forecasts, he cannot very farsightedly conduct the frighteningly unstable course of a scientific and technical age. Little argument is needed to prove the deplorable misunderstanding of the politician about science. Our public men are largely attorneys and business executives; it is not surprising that they have little sensitivity to scientific thinking. An isolated example is hardly fair, but as an illustration let me cite the lack of understanding shown in a remark that the Republican candidate made during the recent Presidential campaign. He was attempting to demonstrate his grasp of the import of fundamental research as opposed to mere commercial inventiveness. He expatiated at length on the values of basic science only to end the entire speech with the observation that after all if dedicated laboratory men had not accomplished their wonders the world would not have the television on which the Vice President was being watched.

A few words on the problems that other sciences have with the politicians may remove from physicians any sense of neurotic uniqueness and may throw some light on the character of the difficulties and may suggest solutions. Paul B. Sears, certainly one of America's first-rate minds, remarked in 1956 of the question here being discussed, "I see little prospect of permanent relief unless we can establish among the American public and its political leaders a higher standard of scientific literacy than now obtains. I do not refer necessarily to the knowledge of the more esoteric and difficult aspects of science but to such very simple matters as the conviction that two and two make four, that water runs downhill, and that two bodies cannot occupy the same space at the same time."

The physicists and geneticists first of all have had a frustrating fifteen years, trying to persuade the powers that be of the tremendous catastrophe of repeated nuclear explosions in time of war and of the suicidal risk to the human race of radioactive fall-out. It has been difficult to convince either the public or its leadership just because neither is literate about the greatest danger ever to confront the species.

The Federation of American Scientists resolved to publish its own non-technical magazine, *The Bulletin of the Atomic Scientists* with the prophetic clock on its cover, to attempt desperately to reach the intelligent public with information about the actualities of the era. The ecologists and other biologists have felt equally feverish in raising to popular attention the threat of population explosion and the consequent rapid exhaustion of the globe's natural resources. Some of them are openly pessimistic about the possibility of man adjusting his bionomic ways in time to avoid his final extinction on earth through the action of these natural forces. Changes have been induced in the physical environment that may eventually make mankind's existence untenable. Yet there is little evidence that the experts in the field have access to the politicians, or even that the latter know they exist. Our governmental leaders seem more prone to listen to the "practical men" who find in the proliferation of the populace a welcome addition to the industrial market and who blithely believe that the depleted mineral reserves of this rich continent will be magically replaced in the future. The biologists see the balance of nature tragically disturbed. They look on man as an animal who must live in harmony with his environment, and they see no confirmation of any such awareness on the part of the people who are trusted with the guidance of the great nations of the race. The chemists point to heedless pollution of our surroundings by the waste products of our industrial processes. Water and air contamination are a scandal, but the politician, no more than the public, gives any sign that he knows what the chemist is talking about.

What should be the scientist's role in public affairs? — be he medical scientist, physical scientist, biological scientist, or social scientist. One may conceive of three ascending steps of political involvement for him. He may first announce from his ivory laboratory that objectivity forbids any participation in social decisions beyond the provision of such data as he can accumulate. This point of view insists that the determination of values must be left to the general public, which assumedly has some special intuition in such matters, and that the scientist has no business using his prestige in behalf of a particular preference, and in fact

that he has no specific competence for such determination. A second and less aloof approach claims that the scientist must make available not only the facts as accurately as he can ascertain them and the hypotheses he derives from them but also must spell out very explicitly what he believes would be the results of various alternative courses. Tacit in such an analysis is a recommendation of a preferred line of action. If one choice will result in death and disease while another will result in longer life and greater health, it would seem obvious to the medical man that the latter would be preferred by all people. There is, finally, the third step, and it is this that the Federation of American Scientists felt itself obliged to take. This is the courage of commitment, espousing a cause and working for it. This is the action finally taken by natural scientists who feel that the plight of the world is close to hopeless unless men of good will exert themselves to implement what is to them rationally obvious. This is the judgment of men who find nothing in our past experience and nothing in the evolutionary process that can enable man to adjust automatically to the facts of the atomic age fast enough to ensure his survival past this century. This is the judgment that says that only through the exercise of man's intelligence and the farthest reach of his creative imagination can he perhaps ensure his biological inheritance. There are risks in the partisan method. There is the possibility that the scientist may lose his effective impact on public opinion by exhortation too frequent and too shrill. There is the hazard also of loss of his reputation for impartiality. In the face of the kind of jeopardy to the world represented over-population, war, radioactive fall-out and the exhaustion of natural resources, these objections lose their strength. Objectivity and scientific detachment are virtues. Survival is a virtue too.

The role of the doctor as medical scientist in the public arena is a little easier than the tasks of his brothers, the natural, social and biological scientists. It is easier because the doctor is committed without argument to a value judgment, that health is better than disease and that life is better than death. He is dedicated to a social purpose that almost every man will accept, the existence of the individual members of the species and the perpetuity of the race. He

always stands for eagerly accepted propositions that enhance health and postpone death. The philosopher may depreciate the physician as a simple man. He is a simple man, impatient of debate about the worth of human life. Society would not have him other. It requires that the doctor be devoted to the concerns of health; it wants neither a nihilist nor a nonpartisan. The physician therefore is expected not only to declare the medical facts as he sees them, not only to clarify the alternatives for public decision in the field of health, but also staunchly to recommend a line of attack. The public-minded doctor often labors actively in behalf of measures he thinks necessary to implement his professional advice. He is not only the advisor of the citizenry about health, but he becomes the most spirited worker in the vineyard.

If politicians do not understand the broad connotations of scientific knowledge and method, no better do they appreciate the determining subtleties of health and disease. The legislator or government executive is usually concerned with a legal and economic picture of society and more recently with one that includes certain social aspects. Not as yet does he identify the historical forces and events that influence physical and mental well-being. In this area the doctor must educate the man of affairs. Only the legislator can minimize statutory lag. Only he can bring up to date the various health laws, can regulate business so that industrial practices do not produce illness, can rule that the freedom of the land is not to be twisted into freedom to cause disease, can overcome with law the illusory protection of the ancient warning of *caveat emptor*. But to accomplish these ends, he needs first to know the medical facts.

There should be both general and concrete items in the politician's medical education. It is not too much first of all to ask that he have a grasp of modern theories of disease. He should have acquaintance with the concept that disease is an adaptation to stress, so that he can conceive what the physical and psychological urgencies of modern life may mean to health. He should have some understanding of infection, of new growth, of degenerative processes, and of modern hypotheses of mental disease.

A few examples of specific health issues on which the politician needs indoctrination should serve to outline the ground. He should for ex-

ample know the possibilities of safe automobile construction, which might lead him to set legal standards to force the tycoons of Detroit to provide cars that are not merely stylish Jugger-nauts. The lawmaker should be shocked into action by the elementary recognition that traumatic injury ranks third among all causes of death in the United States and that more than half of all traumatic fatalities are related to automobile accidents.

Politicians should have brought clearly home to them the menace to health of water and air pollution. How many know the story of the five-day sulphurous smog of Donora, Pennsylvania, which in 1948 smote almost six thousand people and killed 18? Or are aware of the threats of industrial fumes in the environments of almost all major American cities? Or have even heard of the yearly epidemics of respiratory distress that strike the inhabitants of New Orleans, which have been related to certain air-borne wastes? How many realize that our waters have been so dirtied that beaches in the Great Lakes and even along certain coasts have had to be closed, or that in some towns tapwater foams like beer because of the detergents that befoul it? How many appreciate the sinister exposure to harmful chemicals in foods, or the possibility of causing deficiency diseases due to modern agricultural and food preservation practices, or the risks of estrogenic substances used in animal fattening?

There are other concrete health problems about which lawgivers need to learn, situations which only they can correct. For instance, the public is put in genuine physical jeopardy by the use of fluoroscopes for shoe fitting in department stores and shoe stores. Even in the enlightened State of Arizona it has not yet been possible to enact a pure milk law to avoid milk-borne disease. Fluoridation of public water supplies to prevent dental caries is strenuously opposed by a certain lunatic fringe of the public and needs official governmental backing. The danger of radioactive fall-out and of excessive radiological exposure from other sources cries for legislative acknowledgment and reduction.

Other areas in which the politician needs medical education are less immediate and evident. One can, however, hope that some day the legislator can be brought to know enough about genetic diseases so that laws may be

passed to prevent their spread. A very striking recent example shows that such action is not infeasible. The administration of the Territory of New Guinea has announced a eugenic quarantine of the entire tribe of Fore, some thirty thousand people who inhabit almost a thousand square miles in the Eastern highlands of that island. Almost half the women and about a tenth of the men of the Fore tribe die of a hereditary neurological disease known as Kuru. This affliction is transmitted by a gene which is a Mendelian dominant in females and a recessive in males. Males therefore tend to move from the Fore region into neighboring tribal districts, carrying the lethal gene with them. To counteract this peril the government has prohibited emigration from the Fore area. Can anyone believe that our government, faced with a similar crisis in this country, would be able to impose an equally severe restriction to safeguard the public health?

Such a case leads one to the thought that the politician needs to be educated less to legislate with regard to explicit isolated health questions than to learn enough to provide the statutory authorization necessary to make modern scientific medical knowledge maximally available and operative. For example, the public man should command detailed comprehension of the practical workings and conditions of medical practice and how they are related to the care of the sick. It does no good to legislate against an organization of medical practice that has been determined to be the one that best provides for the health of the public, merely because the system does not suit a certain party line. Statutes are needed to eradicate such quackery as faith-healing, naturopathy, and chiropractic, and the politician must have familiarity with the fraudulence of such charlatans in order that he may be armed against the onslaught of those who scream that curtailment of such superstitions is somehow an impairment of freedom. Again, freedom is not freedom to cause or disseminate disease or freedom to deny scientific medical care to the ill.

When the politician understands the structure of medical practice, he will see the social inequity of the malpractice suit. Only the lawmaker who realizes that the present legal situation prevents doctors from trying new treatments for desperate diseases can be expected to

sponsor legislative relief. The politician must be inculcated with the facts about modern medical education, how comprehensive it must be, how expensive it is, so that he can plan practically to provide it. He must be impressed with the doctor's desire to keep his own house clean and his need for a medical practice act that will permit him to do so. The politician must have insight into the drug industry so as to be able to neutralize exploitation without hamstringing the development of new remedies.

An example of particular force at the present time is antivivisection legislation. There has been before the Senate Health Subcommittee a bill, S.3570, which would place such restrictions on the use of experimental animals in research laboratories as enormously to delay medical investigation. It is ironic that this measure was introduced by a liberal Senator and supported by other liberals. It was presented by John Sherman Cooper of Kentucky and co-sponsored by such men as William Proxmire of Wisconsin, Pat McNamara of Michigan, Estes Kefauver of Tennessee, Wayne Morse of Oregon, and Mike Mansfield of Montana. Only the statesman who is educated in the reality of animal experimentation can be expected to recognize the inadvisability of such legislation. Dr. Maurice B. Visscher writing in the *Humanist* pointed out years ago that we already have laws prohibiting cruelty to animals and that there is no need for obnoxious legislation that is based on the false premise that sadistic practices are now common, and that can be designed only to decrease the application of animal experimentation.

If doctors and other medical scientists were to attempt somehow to educate politicians, what would be the curriculum? And what would be the method of communication? It would seem, first of all, that every medical organization, be it a county society, a State association, the AMA, or a specialty group, should insist on regular and constant contact with the political powers of the city, county, state, and nation. Obviously, these societies must so conduct themselves as to earn the confidence of men of affairs. Their proposals must be such that they are clearly in the public interest and are not economically self-serving. Medical societies through their spokesmen, should be available to legislators at all times. Furthermore, they should not wait for invitations to give their opinions but should speak

out openly whenever important questions arise that involve health. Professional associations should maintain liaison with the committees that direct legislation so that they can sponsor bills of their own, can back and second medically sound enactments proposed by others, and can fight on the proper committee battleground legislation which is definitely not in the interest of the public health. Organized medicine can go further. It can establish a relationship with the Governor of the State, the Mayor of a city, and other appointing officials so as to be considered a source of directive information when appointments involving doctors are made. Politicians by custom commission their friends and political creditors to office and are not easily persuaded to consider scientific accomplishment or medical competency when they look over the roster of physicians. We have seen exactly this situation in Arizona, where the appointive officers of the State have not asked ARMA for nominations of physicians for such bodies as the State Board of Public Welfare, a committee to study narcotic addiction, and a committee on atomic energy. The last two particularly distress us. The Association, at its 1960 Annual Meeting, sponsored a special seminar on the subject of narcotic addiction. Yet not one of the men who prepared that program was selected for the State Study committee. Not a single psychiatrist was appointed to evaluate a problem that is admittedly one involving emotional illness. And the committee was instructed, against all scientific thought on the subject, to "get tough" with drug law offenders. The Atomic Energy Committee was appointed without a radiologist member, nor was one picked until strong protests were lodged. ARMA promises a future attempt to convince the appointing officers that sound public policy dictates that this State Medical Association is the proper agency to consult whenever a physician is required for his special knowledge on a governmental commission or board.

Doctors should also enter into civic life at every possible point so that medical opinions will percolate upward from the grass roots toward the highest level of government. Physicians should be involved in civic committees, charitable agencies, school boards, and various voluntary organizations so that whenever a health question arises a doctor will be present to give enlightened guidance. We have only

ourselves to blame if we are not on the spot when we are needed. Our fellow citizens then either turn to uninformed persons or act impulsively on the basis of poor or ill-digested information. Every doctor, every year, all of his life, should be engaged in civic activity as partial fulfillment of his pledge to protect the public health.

There are also long-term ways in which medicine, like the other sciences, should attempt to influence government. A good case can be made out for a governmental Department of Medicine and a cabinet post for a doctor. The needs of health are not served by the present Department of Health, Education, and Welfare, nor would they be by a Department of Science. Medicine deserves a voice at the summit of government. Perhaps similar divisions should exist in our state governments, quite aside from the established departments of public health. Even more essential than this is public acquaintance with medical science. A. V. Hill, a great mind, once wrote, "Science is in the best sense, I believe, key to the whole culture of our modern world, that general culture which exists in its different and presently contesting forms along the Potomac, the Volga, and the Yangtze. But scientists are only the special professional exponents of their way. What will count in the end is not their acts alone nor their understanding of their duties, however deep, but the degree to which the general ends of science gain adherence among the people as a whole." If the informed public apprehends science it will in turn force the politician to foster legislation in the interests of science and in the interests of health. Such indoctrination is a medical society function. Perhaps there should be no public relations committee in a professional association, but only a public education committee. It is thus that your Association interprets the function of its public relations committee. It is oriented to informing the public about medical science, not to the advantage of the doctor's precious image but to the advantage of the health of the people. Finally, in the very longest view, doctors should demand adequate scientific medical education in the secondary schools and colleges, perhaps even in the elementary schools. A liberal education entails exact knowledge of man, and knowledge of man includes information about his physiological and emotional

functionings and the fashion in which those processes become disordered. As a compulsory and non-elective part of education we should insist on hygiene, not to blow the doctors' trumpet, but to arm the people against the wiles of cultists, to teach them when and where to turn for help, to provide them with the background that will enable them to vote intelligently on social measures affecting medicine.

The public hungers for medical knowledge, and physicians must satisfy that hunger. We must satisfy it in the politician, in the adult public, and most essentially in our children. Some day organized medicine may publish its own periodical of opinion for the intelligent non-medical layman, a journal in its way like the *Bulletin of Atomic Scientists* and not merely a mass magazine like the AMA's present effort.

The task of the education of the politician is a grave charge on the doctor. The physician is pledged to preserve the public health; the politician legislates the facilities that implement the physician's promise. It is that simple. Alfred Korzybski put it this way: "The scientists, all of them, have their duties no doubt, but they do not fully use their education if they do not try to broaden their sense of responsibility toward all mankind instead of closing themselves up in a narrow specialization where they find their pleasure. Neither engineers nor other scientific men have any right to prefer their own personal peace to the happiness of mankind; their place and their duty are in the front line of struggling humanity, not in the unperturbed ranks of those who keep themselves aloof from life." This is a scientific and technical world. Modern knowledge in its best sense is largely scientific, and medicine is a part of science. Scientists by themselves, however, cannot achieve the indispensable ends.

Is this too big a job for the doctor? Its magnitude is really not the question. Rather is its necessity compelling. In the Twentieth Century, with modern knowledge of the causes of disease, physical and emotional, the education of the public, the education of the child, and expressly the education of the politician become inescapable and increasingly vital parts of the doctor's duty. The physician cannot in professional conscience evade this responsibility. It is a responsibility that your Association will not evade.

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Editorial

Radiation Control
Legislation

It is a rare occurrence and worthy of comment when the Federal Government having once obtained control of some facet of our American living seems anxious to return that control to the states, where in most cases it rightfully belongs. Nevertheless at this time the Federal Government seems anxious to do this with regard to the control of ionizing radiation.

The Atomic Energy Commission which was born out of the necessity and emergency of a war time situation for the control of new and

terrible forms of ionizing irradiation as exemplified by the atomic bomb also inherited by its very existence control over the peace time usages of newly discovered and developed forms of ionizing radiation. This has included the manufacture and distribution as well as usage of radio-active isotopes and other sources of radio-activity used in industrial, research, and medical fields.

Enabling legislation is now in existence and the AEC seems anxious to make use of this to

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- Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:
1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
 2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
 3. Be brief, even while being thorough and complete. Avoid unnecessary words.
 4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
 5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
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turn over to the states control of such peace time uses of these sources of ionizing irradiation and relinquishing their control as a federal organization.

In order to effect this transfer of responsibility a state must authorize its governor to sign an agreement with the Atomic Energy Commission assuming these responsibilities and control and the governor must satisfy the AEC that the state has set up a program including proper legislative authority, proper mechanism for inspection and licensing and proper means of enforcement which will be equivalent to or better than the existing AEC authority. If the governor satisfies the Atomic Energy Commission on these points the control will then be transferred to the state.

Most states have recognized that although the AEC is asking only controls over a small portion of the sources of ionizing irradiation that the whole situation presents a broader challenge and presents an opportunity for setting up adequate safety and health controls in regard to all sources of ionizing radiation which may be damaging to the health of the people or injurious to the general welfare. Some thought is then given to control of industrial and medical usages of x-ray equipment, the utilization of sources of ionizing irradiation which are not now under control of the AEC as for example, radium, the protection of workers in mining of radio-active ores, for example uranium, and possible rules and regulations in the transport of radio-active materials.

The problem which seems comparatively simple at first takes on additional complexities when a state anxious to exercise sufficient control for the protection of the health and other interest of its people finds that in adding controls for these purposes — it reaches a point where the beneficial use of such material is discouraged.

Honorable Paul Fannin, Governor of the State of Arizona, has appointed an Arizona Atomic Energy Committee whose purpose is to study this situation and to help draft proposed legislation to be presented to the next Legislature for action if possible. Two members of the Arizona Medical Association have been appointed to this Committee. They would be grateful, I am sure, for any suggestions or comments from the readers.

RLF

EDITOR'S NOTES FOURTH NATIONAL CANCER CONFERENCE—1960

(IN TWO PARTS)
PART II

Lung Cancer — Lung cancer is the end stage of a series of sequential changes that require the presence of a carcinogenic agent, environmental host-modifying factors, and the innate susceptibility of the host.(42) A specific antigen to human lung cancer has been extracted.(44)

Those cancers arising from bronchial mucosa have a protracted latent and silent period. The change from bronchial metaplasia to carcinoma-in-situ to a silent shadow-casting lesion to a symptom-producing cancer is measured in years, not months.(41)

In only 10% of the patients with bronchiogenic cancer has the lesion been asymptomatic. In 90%, symptoms preceded radiological changes. Early detection must be designed to find the curable lung cancer, and the steps of early detection at present consist of semi-annual chest x-rays of the asymptomatic older male and adults with thoracic x-ray abnormalities.(13)

Cigarette smoking today is the single most important cause of bronchiogenic cancer in men. Other air pollutants play only a minor role.(39)

The cure rate of bronchiogenic carcinoma is 53% for local lesions. With lymph node involvement, this drops to 19%, and with evidence of invasion to 6%.(39)

Carcinoma of the Pancreas — There are only 14 recorded cases of 5-year survivals for carcinoma of the pancreas where the Whipple procedure was carried out. There is a 20% mortality for resection of the head of the pancreas for malignancy. The Whipple procedure and a palliative or short circuiting procedure have almost identical periods of survival following surgery, that is 9 months.(15)

Lymphomas and Leukemias — Hodgkin's Disease — as long as this is a local disease, treat it with deep x-ray therapy or surgery; surgery is probably preferable, possibly following it with

x-ray.(1) Supplemental chemotherapy as part of the initial control of advanced Stage II and Stage III lesions is usually desirable. Even in these, however, chemotherapy is not always necessary if the constitutional symptoms disappear during the course of irradiation therapy to all of the known sites. Reserve, if possible, chemotherapy for the terminal complications or for evidence of active disease in the absence of known localized activity. In lymphomas, in particularly Hodgkin's Disease, the patient's resistance is least disturbed, a longer remission is attained, and more complete rehabilitation of the patient procured with "local treatment for local disease."(36)

In 285 cases a survival rate has been attained of 25 years for 20% of the patients with a gradient up to 34% survival at 5 years. That is, four out of five become victims of recurrent disease. With local recurrences, irradiation should be as radical as treatment of the initial lesion was.(36)

Leukemia — Radiation exposure has been associated only with an increased incidence of myelogenous leukemia.(34)

There is an altered immune response and a hypogamma-globulinemia is a frequent concomitant of lymphocytic leukemia.(34)

There is no good evidence that leukemia in man is viral in origin or that it is hereditary.(34)

Treat leukemia with the orally absorbed mustard compounds and the adrenal steroids. These two have greatly improved the effectiveness of therapy in chronic lymphatic leukemia. The patient feels better and life is extended. In chronic granulocytic leukemia, several groups of agents are effective in inducing temporary remissions; irradiation, myleron, the different mustard compounds, thiopurines and steroids are useful. When resistance to therapy does develop, all ordinarily effective agents have little or no benefit even though they are thought to have different mechanisms of action.(34)

There is a marked rise in leukemia in the age group over 60. There seems to be a sex predilection for the adult male. Therefore, one is forced to believe that there is a hormonal influence involved.(14)

Fifty percent of the patients who develop lymphosarcoma will develop leukemia.

In children who develop recurrent symptoms of intestinal obstruction, one should consider

lymphosarcoma in the differential diagnosis.(14)

While 6-Mercaptopurine and Methotrexate are effective in leukemia, there is no indication that use of these drugs to the maximum tolerance dosage produces a higher remission rate than a lower level of usage.(42)

In mice, Methotrexate produced the greatest increase in survival time until compared with 3-Bromo-5-Chloroamethopterin and 3,5 Dichloroamethopterin which produce a survival time of 3-4 times as great.(42)

Cancer of the Stomach — A two weeks' medical trial is recommended for the ulcer. If this is found to be malignant, total gastrectomy is not recommended. Partial hepatectomy is recommended with invasion into one lobe. The results of using the colon as a substitute for the stomach are questionable.(23)

The uptake of radioactive phosphorus is 50% greater in cancer than in normal tissue. On the basis of this fact a test has been developed for gastric cancer whereby thin-walled balloons coated on the inside with an elastic latex base, which is photosensitive, are used. Twenty-four hours following the administration of 500 microcuries of P32, the balloon attached to a nasogastric tube is passed into the stomach, employing dark-room technique. The balloon is inflated with air, usually approximately 700 cc. The patient returns to the ward. Four to six hours later he is returned to the dark room for removal of the balloon. The radioautograph is developed using standard photographic techniques. With this procedure no false negative results were obtained. However, in 16 cases there were three false positives obtained. All of these were patients with healing gastric ulcers.(17)

Human tumor filtrates have shown an antigen specific to stomach cancer.(40)

Malignancy of the Small Intestine — 384 cases reviewed — 164 of them were sarcomas at an average age of 44.2 years; 175 carcinomas, average age 56.8 years; 45 carcinoids, average age 51.5 years. In an additional 39 cases recently reviewed, 25 were symptomatic. Three symptom complexes were noted: diarrhea with a mucus discharge, obstructive symptoms or gastrointestinal bleeding. The 5-year survival was 18% of patients with carcinoma, 20% in the presence of sarcoma, and only one case of carcinoid survived. The ileum was the most common site of

tumor formation of the small intestinal segments.(15)

Cancer of the Colon and Rectum — There has been some doubt cast on the etiologic relationship between polyps of the colon and cancer of the colon, for the distribution of the two is not the same. Empirically, polyps less than 2 cm. in diameter are not cancer.(16)

With cancer of the large bowel, 50% of the operated patients die in the first postoperative year, 13% the second postoperative year, 11% the third postoperative year, 8% the fourth postoperative year and 3% the fifth postoperative year. With each year follow-up, there is a greater approach to the expected normal survival, and after six years the patient does attain a normal survival rate.(17a).

Cancer of the Breast — There is a different rate of occurrence in the different countries; Japan 5/100,000, the United States 22/100,000, Denmark 24/100,000.

The mammotrops of the eosinophilic cells of the pituitary are important in the development of breast cancer.(2)

The artificial menopause has a protective effect to the development of breast cancer. There is a greater frequency in those who have never married or in those who married late in life. There is questionably a greater frequency in the woman who never nursed her babies. Cancer is probably associated with benign breast disease 3-5 times as frequently as it is present in the breast that has not had a benign lesion. The familial factor enters the incidence of breast cancer in that it is 2-3 times as frequent in those who are immediate blood relatives of those who have had breast cancer as it is in the general population.

The annual breast examination is of some help. In the routine examinations carried out, one cancer was found in every 553 examinations, or one cancer in every 150 patients examined. Two-thirds of these tumors were found on the second, third or a later follow-up visit. That is, they apparently developed or became of such size as to become detectable between examinations. Of the asymptomatic patients with cancer, three of the 21 had positive nodes. Of the symptomatic patients, 82% had a 5-year survival. The asymptomatic patients had 100% survival for 5 years.(5)

A number of tumors were found in patients who had been doing breast self-examinations. Therefore, one must very seriously question the value of this procedure.(5)

In the treatment of breast cancer, should we judge our success of treatment by 5-year survival or by the prolongation of comfortable life?(7)

There is a long duration of the tumor being in existence prior to its recognition. If one studies the time for a tumor to double in size in a study of chest metastases, the tumor that doubles in size in 55 days had its inception approximately 5 years ago. The tumor that doubles in size in 76 days had its start eight years ago. The tumor that doubles in size in 121 days arose from malignant cells 10 years ago.(7)

Hormones in the treatment of advanced carcinoma of the breast — if one fails in the use of one class of hormones, you should shift the class, i.e., from estrogens to androgens, or vice versa, in association or not with adrenal-corticoids.(8)

With soft tissue and lung metastasis in the female more than five years post-menopausal, use large doses of estrogen. The androgens are less site specific. The liver and central nervous system give poor response. Remissions are shorter with androgens than with the use of estrogens.(8)

If testosterone is used, use initially 100 mgm. three times per week. It is usually noted with the greater the time the patient is post-menopausal, the greater the response noted to testosterone. 2-Methyl-Dihydro-Testosterone Propionate is probably as effective in tumor suppressive action with less masculinizing effect. (18)

Estrogens can be given safely in the immediate post-menopausal female.(18)

Ablative procedures — initially oophorectomy is indicated for disseminated disease. If the patient had a satisfactory response to oophorectomy, then adrenalectomy is more likely to be helpful, after you lose control of the patient or lose the suppressive effect from the oophorectomy. If the patient is more than two years menopausal, if estrogen gives some response after you lose control with the estrogen, also use adrenalectomy. If the patient did not respond to androgens, there is no criteria if adrenalectomy will be helpful. However, the longer the free period before there is evidence of recur-

rence, the more likely there is to be an objective regression with an ablative procedure,(9) as oophorectomy, adrenalectomy or hypophysectomy.

The question of castration brings up a number of debatable points. If the patient is still menstruating, castration produces the greatest percentage of remissions for the longest periods of time. However, cancer of the breast proceeds in spurts. It should be treated only during a period of advance in the disease. If there is an advance in the disease after castration, or in the post-menopausal period, use Testosterone Propionate. After obtaining a remission with Testosterone Propionate, or failing to do so, wait after stopping the drug before starting another. The patient may have a remission as a result of the withdrawal. When the disease advances again, give estrogen therapy. Then when control is again lost, treat with corticosteroids. After above treatment, and only then, are ablative procedures indicated as adrenalectomy and hypophysectomy.(18)

There have been approximately 9% post-operative deaths following either adrenalectomy or hypophysectomy. There has been objective regression in 32% of the cases after adrenalectomy and 30% after hypophysectomy. The period from ablative procedure to death has averaged 7.6 months following adrenalectomy and 6.5 months following hypophysectomy. These two procedures have given almost equal results with metastasis to bone, soft tissue or viscera. The question arises — does the replacement corticosteroid do some or all of the effective work that is noted from this ablative procedure?(9) It possibly and probably does.

The question arose of prophylactic versus therapeutic castration. Twenty-five percent of patients will show improvement in the premenopausal female with recurrence and given an oophorectomy. Therefore, it is probably indicated to carry out a prophylactic castration in the premenopausal female and in the female up to two years after menopause. It may result in a greater survival rate and a greater duration of survival. The use of irradiation as a castration method is probably less effective than surgical oophorectomy. Prophylactic castration is probably to be encouraged. One should be guided by the degree of disease present. In the patient with extensive disease, prophylactic castration may be of significant help.(24)

Chemotherapeutic agents in breast cancer — there is a difference of opinion as to the most effective drug available. Thio-tepa is preferred by some.(8) 5-Fluorouracil by others.(16a)

The chemotherapeutic agent should be reserved for those who don't respond to hormones. The Fluoropyrimidines have resulted in some regressions, but they are extremely toxic. The question has arisen but is not proven — is there a greater survival if Thio-tepa is given in the immediate postoperative period?(8)

Mitomycin C has some effect in breast cancer. A lower total dosage with greater effect is noted if given every four days.(16a)

Supraradical mastectomy — parasternal recurrence occurs in approximately 10% of the medial and central lesions treated by radical mastectomy. If the supraradical procedure is done properly, this is the group that is eliminated. This procedure should probably be applied to the clinically operable lesions presenting in the central and medial portions of the breast. It is a difficult procedure and should be done only under ideal circumstances. However, 15% of the patients with no evidence of metastasis to the axilla had positive internal mammary nodes. If the axilla was positive, 55% had positive internal mammary nodes. The overall picture is for 33% to show internal mammary node involvement. Therefore, the internal mammary chain should be treated as aggressively as the axilla. If that is done, the cure rate is probably increased 8-10%. Mortality rates are not greater than those with the usual radical mastectomy.

The 5-year survival is 63% with the standard radical mastectomy, a 57% 5-year salvage that is clinically free, 10-15% have a local recurrence. McWhorter apparently has approximately a 19% local recurrence rate. Thirty-eight percent of all patients with internal mammary involvement are free of disease at 5 years. And when only the internal mammary nodes are involved, 44% are free at 5 years. The local recurrence rate is 8%.(6)

Others have not been so satisfied with the supraradical mastectomy, feeling that it is actually detrimental as has been supra-voltage x-ray.(11)

If a supraradical mastectomy is done, fascia lata or ox fascia may be used as a graft to correct the defect.

The survival ratio for patients who have had cancer of the breast, and it was a localized breast

carcinoma, remains below average, approximately 2-4% below the average survival rate even 15 years after the diagnosis and treatment carried out. Thirty-four percent are alive 15 years after surgery. The normal survival rates would indicate that 61% should be alive.(17a)

Cancer of the Thyroid — Seventy percent of the patients dying of cancer of the thyroid and under 17 years of age have had irradiation in the area of the neck. In 80% of the cases this was to the thymus. The thyroid gland in the child is markedly more sensitive to irradiation than in the adult. Even light doses of irradiation to the neck region may result in a thyroid malignancy.(20).

The average dose given these children was 500 r, and the average length of time was eight years from the stimulating dose to the time of development of the malignancy. There is no evidence that I_{131} has caused any case of cancer of the thyroid.(22)

The first barrier to spread of cancer of the thyroid is the capsule; secondly, the nodes on the capsule; and third, finally, the jugular nodes and suprasternal nodes.(22)

Twenty-two percent of the cancers are papillary carcinoma, 5% follicular, 6% solid, and 67% are mixed of two of the above types. Fifty-three percent had adenomas, but none of the cancers arose in an adenoma. Eighty-eight percent of the patients showed bilateral dissemination. In only two of 60 cases studied was there blood vessel invasion.(22)

From the above it would seem that a bilateral total thyroidectomy is indicated but not a prophylactic neck dissection. The dissemination of thyroid cancer outside of the lymph nodes by continuity is rarely seen unless it contains components of solid tumor or is sarcomatous in type.(22)

Radioactive iodine as a scanning procedure is inadequate as a diagnostic means for thyroid nodules. Only 20% of the cancers pick up iodine. They are the follicular and alveolar types. P_{32} is not diagnostic. There is no substitute for removing the nodule. The possibilities of cancer being present in a nodule that does not show activity (cold nodule) are greater than if the nodule shows activity (hot nodule).(33)

If a patient is to receive irradiation for malignancy of the thyroid, say an inoperable patient, as much of this thyroid tissue should be re-

moved as possible before starting irradiation therapy.(21)

Cancer of the Male Genital Tract — The incidence of cancer of the bladder is two times as great in cigarette smokers. Treat the prostatic cancer with radical perineal prostatectomy and/or hormonal therapy. Five percent are potentially curable when first seen. Over 50 years of age, the male should have a yearly rectal examination of the prostate.

In patients who have had maximum antiandrogenic therapy with a good response and a later relapse, further treatment with steroids is advocated. Similar results are obtained by "medical adrenalectomy" by the administration of cortisone as by adrenal ablation.(30)

Sarcolysin has a very definite effect on the group of tumors called the seminoma and with the associated metastasis. It has no effect on other testicular tumors as chorioepithelioma, teratoma and sarcoma. Primary tumors are usually less sensitive to chemotherapy as compared with metastasis. Therefore, surgical treatment should be combined with chemotherapy. There should be pre- and postoperative administration of Sarcolysin. Treatment with this agent leads to the complete disappearance of all tumor metastasis in 50% of the cases of seminoma.(40)

This treatment consists of 40-50 mgm. once in 6-7 days. The blood must be watched constantly for leukopenia. If treatment is successful, repeated treatment must be carried out at intervals in reduced dosage to prevent relapse.(40)

Others advocate the use of radiotherapy for seminomas since they are radio-sensitive in 40% of the cases.(27)

Carcinoma of the Female Genital Tract — Human smegma is unquestionably carcinogenic. It certainly is in laboratory animals.

Routinely do Pap stains every year on all females over 40 years of age.

The expected 5-year survival rate for carcinoma of the vulva is 70%, for carcinoma of the vagina 25%, carcinoma of the cervix 55%, carcinoma of the endometrium 70% and carcinoma of the ovary 25%.

Choriocarcinoma is treated successfully in approximately one-third of the cases with Methotrexate. In these cases complete regression is obtained.(42)

Carcinoma of the endometrium in a number

of cases has responded with progestational agents.(18)

Resection of the Liver — has been done in a few cases for metastasis, but few tumors are amenable to this procedure. Possibly some cases of cancer of the colon have a resectable liver metastasis. If there is direct invasion, a resection of that segment of the liver can be carried out. The mortality is 30-40% for this procedure.

Chemotherapy — There are now 109 drugs in various stages of clinical evaluation. These include 53 steroids and hormones, 22 alkylating agents, 8 antibiotics, 16 antimetabolites and 10 miscellaneous agents.(42)

A method of total body perfusion has been developed and utilized in treating disseminated cancer. Isolation perfusion techniques have been more successful, and five drugs have been used. These included nitrogen mustard, phenylalanine mustard, actinomycin D, TSPA and 5-Fluorouracil. Complications are edema of the extremity, depression of hemopoiesis and gastrointestinal upset.

5-Fluorouracil has shown effective response in solid tumors if used until stomatitis and diarrhea appear. Objective remissions have been noted in cancer of the colon, breast, rectum, cervix, ovary and liver, with no effect in cancer of the lung, stomach, pancreas and malignant melanoma.(42)

Sarcolysin has shown effective results in seminoma, reticulum cell sarcoma and Ewing's tumor.(16a)

The chemotherapeutic index of nitrogen mustard is 1.1:1; for Cytoxan it is 3.4:1. Some of the acute leukemias have been responsive to Cytoxan when they are no longer responsive to nitrogen mustard. Bronchiogenic carcinoma can probably be aided by the use of Cytoxan.(16)

Survival — (5-Year Survival)(17)

	1935-1944	1945-1954
Breast	76%	78%
Corpus uterus	68%	81%
Cancer of the cervix	52%	67%
Cancer of the ovary	52%	66%
Cancer of the large bowel	37%	64%
Cancer of the rectum	30%	52%
Cancer of the stomach	13%	21%

Patients treated for cancer of the lung be-

fore demonstrable spread beyond the lung show a salvage rate greater than 50%.(17)

REFERENCES

1. Michael B. Shimkin, National Cancer Institute, Bethesda, Md.

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3. Hilary Koprowski, Director, Wistar Institute and Wistar Professor of Research Medicine, University of Pennsylvania, Philadelphia, Pa.

4. Arthur C. Upton, Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tenn.

5. Donald B. Shabon, Cancer Detection Center, University of Minnesota, Minneapolis, Minn.

6. Jerome A. Urban, Assistant Attending Surgeon, Memorial Hospital for Cancer & Allied Diseases, New York, N. Y.

7. Vincent P. Collins, Professor of Radiology, Baylor University College of Medicine, Houston, Tex.

8. Robert A. Huseby, Research Director, American Medical Center at Denver, Denver, Colo.

9. Ian Macdonald, Clinical Professor of Surgery, School of Medicine, University of Southern California, Los Angeles, Calif.

10. Leslie Foulds, Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London, England.

11. George E. Moore, Director, Roswell Park Memorial Institute, Buffalo, N. Y.

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39. Oscar Auerbach, Senior Medical Investigator, Veterans Administration Hospital, East Orange, N. J.

40. N. N. Blokhin, President, USSR Academy of Medical Sciences, Moscow, USSR.

41. Richard H. Overholt, Surgeon, Overholt Thoracic Clinic, Boston, Mass.

42. National Cancer Institute, Bethesda, Md.

43. Wendell M. Stanley, Virology, University of California, Berkeley, Calif.

44. James T. Grace, Jr., Roswell Park Memorial Institute, Buffalo, N. Y.

LETTER TO THE EDITOR

September 24, 1960

My dear Friend,

I was very glad to receive your letter in which you show me your anxiety about the future of the medical practice in the States.

But, in spite of this shadowy horizon, I have made up my mind to come back to North America, this time in the States.

The American Consul in Marseille told me this afternoon the way to obtain quickly an immigrant visa; I must give him a letter of an American approved hospital, by which my services as an intern are needed urgently.

And, walking back to my office, I thought that it would be very pleasant for me (and I hope, not too disagreeable for you) to work as an intern in your hospital. It would be a good opportunity for us to meet and know better each other.

Don't consider me as a joker; I know perfectly what I want and if we are back to France, it is not completely my fault. When poor Yolande reminds our Canadian experience, she begins shivering and her nose grows red retrospectively. You know as much as we do about cold regions, don't you?

And, to be frank, we strongly prefer the U. S. manners than the Canadian ones, even in Quebec.

I have not the formal intention to practice in Tucson after the five years required for the American citizenship, but probably in a little sunny town. You are quite unable to conceive the French medical situation; for example, I tell you how much we are obliged to charge in application of the new laws: last week, I had three private operations: a peritonitis by perforated appendix, 36 dollars; an hysterectomy, 72 dollars; a perineorrhaphy with ablation of a big left ovary cyst, 86 dollars, that is to say 194 dollars including forty visits after those operations. We are indeed obliged to attend freely an operated patient during a period of 21 days.

But the main reason of my desire to move to the States is that I consider as very problematic my children's future situation in France; we are now as a boiling pot with the people coming back to France from our "ex-colonies" and it is to become mad when we see the rush of the children in the schools of all kind.

That are the reasons why I will not stay longer in France, even on the "Cote d'Azur"; I suppose easily that your future conditions of working will be better than those above mentioned.

I much appreciate your non interference in the other man's business but I strongly ask you as a personal service to help me in this way. Can you tell me how much an intern is paid usually in the States and especially in Tucson hospital. In spite of our Canadian experience, we have still a pretty lot of money that will help us to live almost comfortably during five years.

I hope your answer very soon and, expecting your letter, I send you my best wishes for you and your family.

Sincerely yours,
Dr. Y. H. Wuidart

N-B. — You don't know very much about myself and my studies.

I am now forty-one and have been graduated from Paris Medical University (1946).

I have learned surgery in the Paris Hospitals where I was the assistant of professor Antonin Gosset.

Chief surgeon of Red-Cross Maternity.

Since 1946, I practiced private surgery and I am very interested in gynecology and cancer.

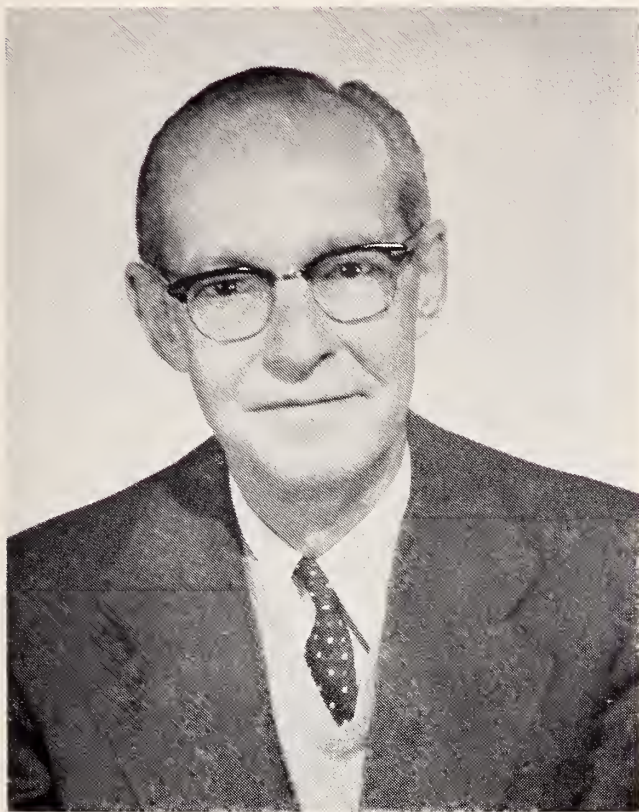
I published some personal works about cancer in French publications and one in a Canadian journal of surgery about porphyries.

If necessary, I should send to the hospital the photostatic copies of my diplomas and certificates.

In Memoriam

Howard Currie James

1906 - 1960

**Howard C. James, M.D.**

Dr. Howard Currie James died at St. Mary's Hospital, October 18, 1960. He was born in Laurium, Michigan, May 23, 1906. He practiced obstetrics and gynecology in Tucson for over twenty-five years.

Dr. James was married in 1930 to Dorothy Rice of Delaware, Ohio. A daughter, Mrs. C. Dee Simpson of Phoenix and a son, Michael, a student at DePauw University were born of this marriage. Two grandchildren also survive.

Dr. James received his bachelor's degree from

Ohio Wesleyan University and his doctor of medicine degree from Michigan University. Dr. James served as intern at Manhattan Maternity Hospital in 1932 and he served a rotating internship at Moses Taylor Hospital, Scranton, Pennsylvania, in 1933. He was a resident at Chicago Lying-In Hospital in 1934. He practiced his specialty in Tucson from 1935 until his death.

Dr. James was a member of Phi Gamma Delta social fraternity and Nu Sigma Nu medical fraternity and a member of the Pima County Medical Society. He was president of the Tucson Obstetrical and Gynecological Society in 1956. He was Vice President of St. Mary's Hospital Staff in 1944. He was president of the staff in 1950 and 1951. He was a member of the governing staff in 1955. He was a member of the Arizona Medical Association and the American Medical Association. He was a fellow of the American College of Surgeons, the Southwestern Obstetrical and Gynecological Society and the Central Obstetrical and Gynecological Society. He was a member of the American Academy of Obstetrics and Gynecology.

Dr. James was called "Mike" nearly all of his life. This name he received from his father when he was a little boy. The name stuck and I think that even Dr. James forgot that "Mike" was not his given name.

Dr. James delivered over six thousand babies and there were no maternal deaths. These remarkable statistics represent a doctor's life and devotion to his work. This high standard of personal and professional response to the practice of medicine is a final salute to a great doctor.

B. P. Storts, M.D.

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Your Cholesterol Depressant Diet Book

Menu plan for

Mrs. John Dae
DATE Feb. 1961

JOSEPH ROE

M.D.



STRINGENT CONTROL

breakfast

1 1/2 cup grapefruit sections
*Neat Egg
Coffee or tea with 3 drops, skim milk
TOTAL 30 30

lunch

4 oz. tomato juice
2 oz. drained tuna fish, surrounded
with raw vegetables with 1 tsp.
French dressing
1 Tye water
Coffee or tea with 3 drops, skim milk
TOTAL 75 30 280

snack

(May be had at mid-afternoon or
evening)
8 oz. skim milk
TOTAL 90 90

dinner

*2 1/2 portion Pickled Beef and
Cucumber Salad
*1 1/2 Baked Chicken Breast
*Baked Asparagus
*Canned peach halves
Coffee or tea with 3 drops, skim milk
TOTAL 70 30 50 50 10 480

snack

8 oz. skim milk
TOTAL 90 90

Menu 1

lunch substitution

1200 CALORIES

1 1/2 cup grapefruit sections
*Neat Egg
Coffee or tea with 3 drops, skim milk
TOTAL 30 30

1800 CALORIES

1 1/2 cup grapefruit sections
*Neat Egg
Coffee or tea with 3 drops, skim milk
TOTAL 30 30

2400 CALORIES

1 1/2 cup grapefruit sections
*Neat Egg
Coffee or tea with 3 drops, skim milk
TOTAL 30 30

TOTAL CALORIES FOR DAY

Total fat calories 30% of total
Total polyunsaturated 40% of fat
Carbohydrate 280.7 grams

USE THIS HANDY ORDER FORM

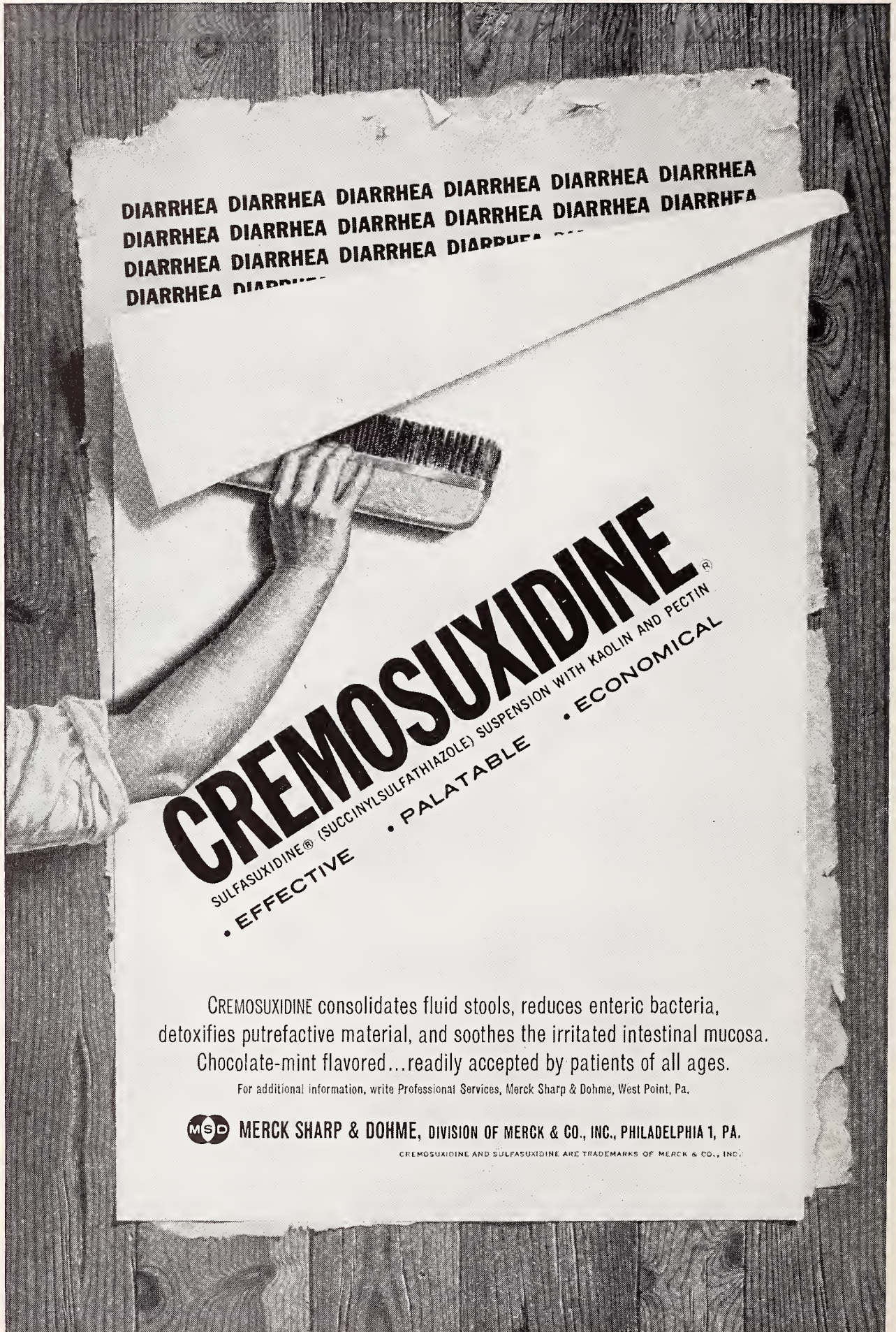
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Topics of Current Medical Interest

Board of Medical Examiners
State of Arizona

The Board of Medical Examiners of the State of Arizona at a regular meeting held Saturday, October 15, 1960, issued certificates to practice medicine and surgery in this State to the following doctors of medicine:

ALLEN, Glen Ivan (I), 600 1st Nat'l Bank Bldg., Peoria, Ill.

BAUER, Thomas William (Oph), 550 West Thomas Road, Phoenix, Arizona.

BAUMGARTNER, JR., Donavin Albert (GS), 15660 Oakhill Rd., East Cleveland, Ohio.

BOCK, George Edward (I), Sedona, Arizona.

BRUST, Richard Duane (GP), 130 Monroe St., Nogales, Arizona.

BURCH, John Ellis (ObG), 200 Medical Arts Bldg., Joplin, Missouri.

CARROLL, Daniel Bear (PIReS), 644 Post Avenue, Rochester, New York.

CLEMANS, III, William Joseph (GP), 1518 Main St., Florence, Arizona.

COHEN, Sidney A. (Path), Edmundson Hospital, Council Bluffs, Iowa.

DUDLEY, Patrick William (GP-I), 6042 W. Pinchot Avenue, Phoenix, Arizona.

FLOYD, Alfred Robert (Oph), Lackland AFB Hosp., Lackland AFB, Texas.

FRENCH, Alfred Robert (Oph), 722 Professional Building, Phoenix, Ariz.

FUZZELL, Jameso (ObG), Maricopa Co. Gen. Hosp., Phoenix, Ariz.

HAGGARD, Jerry Wayne (GP), 4752 E. Indian School Rd., Phoenix, Ariz.

HARDIN, Oscar Allen (ObG), 1200 E. Washington Street, Phoenix, Ariz.

HARE, Renate Zeissler (GP), 7603 N. 19th Avenue, Phoenix, Arizona.

HAYWARD-BUTT, John Terry P. (Anes), 5713 N. 11th St., Phoenix, Arizona.

HENDRICKSON, Charles William (A), 2515 North Main St., Santa Ana, Calif.

HINDMAN, William McIntosh (Path), 1641 N. Tucson Blvd., Tucson, Arizona.

HUTH, Peter Emery (U-GP), 3408 East Fairmount Ave., Tucson, Ariz.

KENNEDY, Joseph Mathias (GP-I), Maricopa County Gen. Hosp., Phoenix, Ariz.

KNOX, Jasper Newman (GP), PHS Indian Hosp., Parker, Arizona.

LINDBERG, Robert Dery (R), 721 North 4th Avenue, Tucson, Arizona.

LIST, JR., Ellis Worthington (GP), McNary Hospital, McNary, Arizona.

MOON, Barclay Jay (GP-Ind), 1756 1st Ave., N.E., Cedar Rapids, Iowa.

MOORE, Thomas Francis (GP), Miami-Inspiration Clinic, Miami, Arizona.

OSTEGAARD, Erling (GP), Rock Point Mission Hospital, Chinle, Ariz.

RUDOLPH, JR., Royal William (Anes), Craycroft Med. Center, Tucson, Arizona.

SCHERER, Roland Gustav (U), 114 East Main St., Bozeman, Montana.

SCHREIBER, Norman John (GP), 618 South 5th St., St. Charles, Illinois.

SMITH, Clinton Russell (I), 4250 E. Thomas Road, Phoenix, Arizona.

SMITH, Richard Lee (GP), 550 N. Country Club Dr., Mesa, Arizona.

TAYLOR, Lawrence Carol (S), 1905 E. Fairview Ave., Park Ridge, Ill.

THOMAS, H. Stephens (GP), Harbor General Hosp., Torrance, Calif.

WEBER, Johan Otto (Pd), St. Joseph's Hosp., Phoenix, Arizona.

WEISTENTHAL, Charles Leonard (U), 945 N. 12th, Milwaukee, Wisconsin.

WERTZ, Max Lindbergh (Otol), 222 E. Delaware, Chicago 11, Illinois.

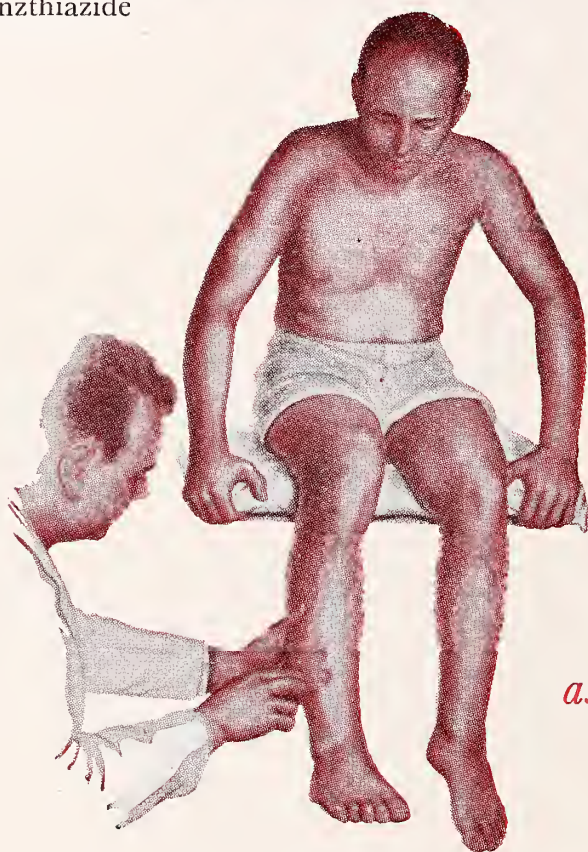
YARD, George Harges (GP), 914 Meade, Flagstaff, Arizona.

ZAGER, Lewis Llewellyn (S), 927 W. Fourth St., Waterloo, Iowa.

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References: 1. Pitts, R. F., Am. J. Med., 24:745, 1958. 2. Ford, R. V., Cur. Therap. Res., 2:51, 1960.

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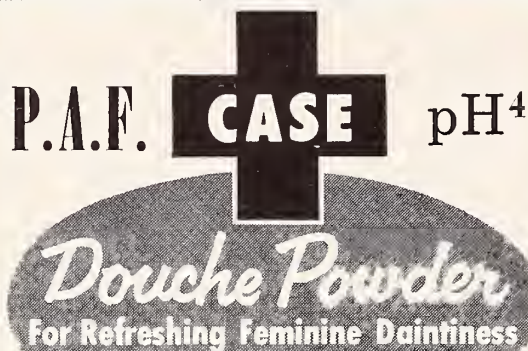
How much "spectrum" do you need in treating an infection? Clearly, you want an antibiotic that will show the greatest activity against the offending organism, *and the least activity against non-pathogenic gastro-intestinal flora.*

Weigh these criteria—and make this comparison—when treating your next coccal infection. Erythrocin is a medium-spectrum antibiotic, notably effective

against gram-positive organisms. In this it comes close to being a "specific" for coccal infections — *which means it is delivering a high degree of activity against the majority of common infection-producing bacteria.*

And against many of the troublesome "staph" strains—a group which shows increasing resistance to penicillin and certain other antibiotics—Erythrocin continues to provide bactericidal activity. Yet, as potent as Erythrocin is, *it rarely has a disturbing effect on normal gastro-intestinal flora.* Comes in easy-to-swallow Filmtabs®, 100 and 250 mg. Usual adult dose is 250 mg. every six hours. Children, in proportion to age and weight. Won't you try Erythrocin? ®Filmtab—Film-sealed tablets, Abbott.





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(FORTIFIED TRIPLE STRENGTH)

Buffered to control a normal vaginal pH. The new, improved P.A.F. formula now includes — sodium lauryl sulfate and alkyl aryl sulfonate, providing high surface detergent activity in acid and alkaline media.

P.A.F.'s low surface tension increases penetration into the vaginal rugae and dissolution of organisms including trichomonas and fungus. P.A.F.'s high surface activity liquifies viscous mucus on vaginal mucosa, releasing accumulated debris in the vaginal tract.

Non-irritating, non-staining, no offensive after-odor.

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STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)

For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Synceillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

ANNOUNCING—
SPECIFICALLY FOR
INFECTIONS DUE TO
“RESISTANT” STAPHYLOCOCCI

AN ENTIRELY NEW SYNTHETIC
“STAPH-CIDAL” PENICILLIN

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

UNIQUE—BECAUSE IT
RETAINS ANTIBACTERIAL
ACTIVITY IN THE PRESENCE OF
STAPHYLOCOCCAL PENICILLINASES
WHICH INACTIVATE
OTHER PENICILLINS



NEW SYNTHETIC PENICILLIN FOR “RESISTANT” STAPH

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MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHICILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHICILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHICILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHICILLIN is stable in the presence of staphylococcal penicillinase. STAPHICILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHICILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHICILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHICILLIN is rapidly absorbed after intramuscular injection. Peak blood levels 16-10 mcg. ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHICILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHICILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHICILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHICILLIN therapy.

Toxicity studies with STAPHICILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHICILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHICILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHICILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHICILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Synicillin) and STAPHICILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHICILLIN therapy, appropriate measures should be taken.

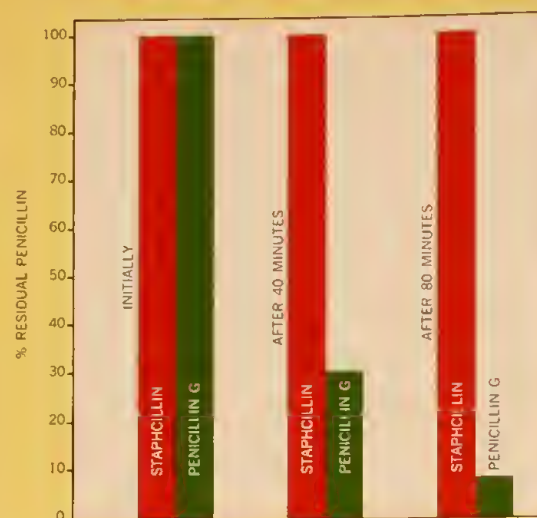
SUPPLY

List 79502 — 1.0 Gm. dry filled vial.

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UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN



In the presence of staphylococcal penicillinase, STAPHICILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time. (After Gourevitch *et al.*, to be published)

Specifically for "resistant" staph...

Staphicillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

The failure of staphylococcal infections to respond to penicillin therapy is attributed to the penicillin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

Unlike other penicillins:

1 STAPHICILLIN is effective because it retains its antibacterial activity despite the presence of staphylococcal penicillinase.

2 The clinical effectiveness of STAPHICILLIN has been confirmed by dramatic results in a wide variety of infections due to "resistant" staphylococci, many of which were serious and life-threatening.

Like other penicillins:

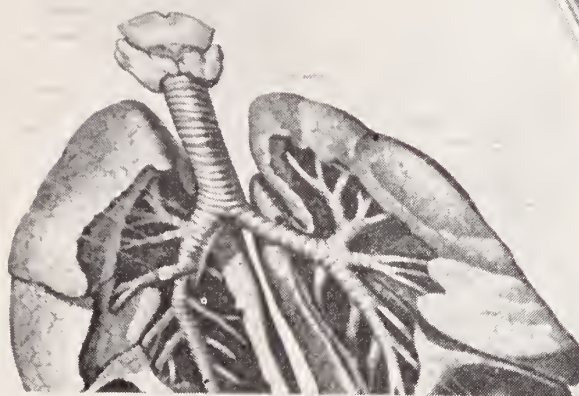
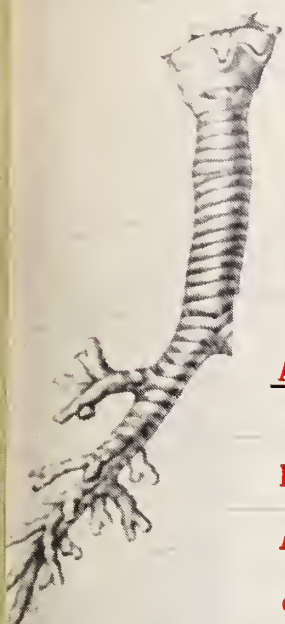
STAPHICILLIN has no significant systemic toxicity. It is well tolerated locally, and pain or irritation at the injection site is comparable to that following the injection of penicillin G. In occasional cases, typical penicillin reactions may be experienced.

PROFESSIONAL INFORMATION SERVICE — The attached Official Package Circular provides complete information on the indications, dosage, and precautions for the use of STAPHICILLIN. If you desire additional information concerning clinical experiences with STAPHICILLIN, the Medical Department of Bristol Laboratories is at your service. You may direct your inquiries via collect telephone call to New York, PLaza 7-7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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Illustrative case summary from the files of Bristol Laboratories' Medical Department

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Syncillin Pediatric Drops—1.5 Gm. bottles. Calibrated dropper delivers 125 mg. (200,000 units)

*Streptococcal infections should be treated for at least 10 days to prevent the development of rheumatic fever and as prophylaxis against bacterial endocarditis in susceptible patients.

Complete information on indications, dosage and precautions is included in the circular accompanying each package.

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USUAL ADULT DOSAGE:

One tablet three times a day.

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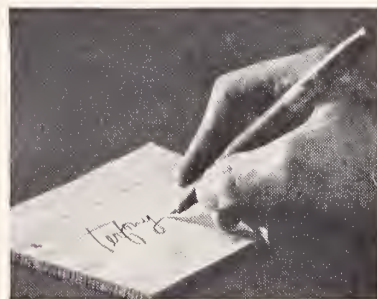
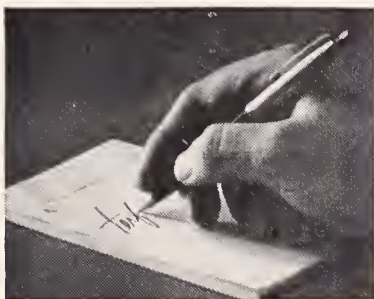
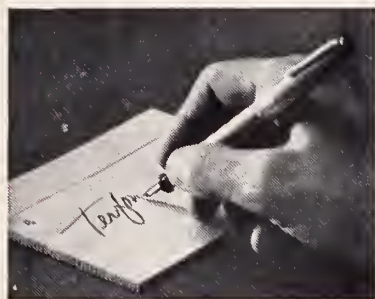
Friedman, A. P., and Merritt, H. H.: J.A.M.A. 163:1111 (Mar. 30) 1957.

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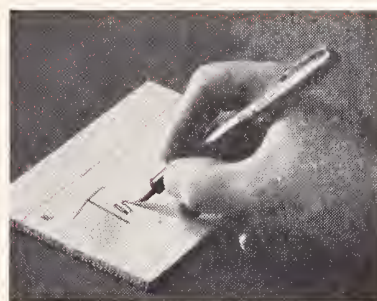
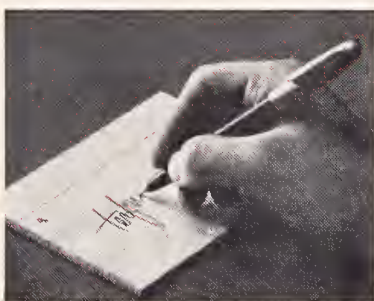
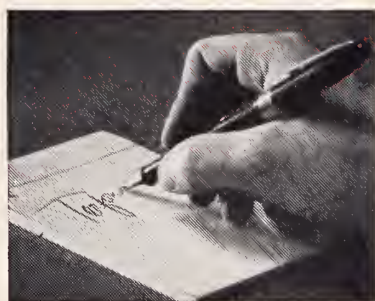
*Each contains: Sandoptal (Allylbarbituric Acid N.F. X)
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*Clark, T. E., in press.

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† pentaerythritol tetranitrate †† brand of hydroxyzine

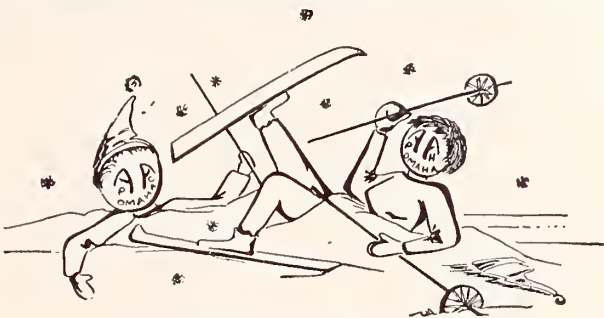


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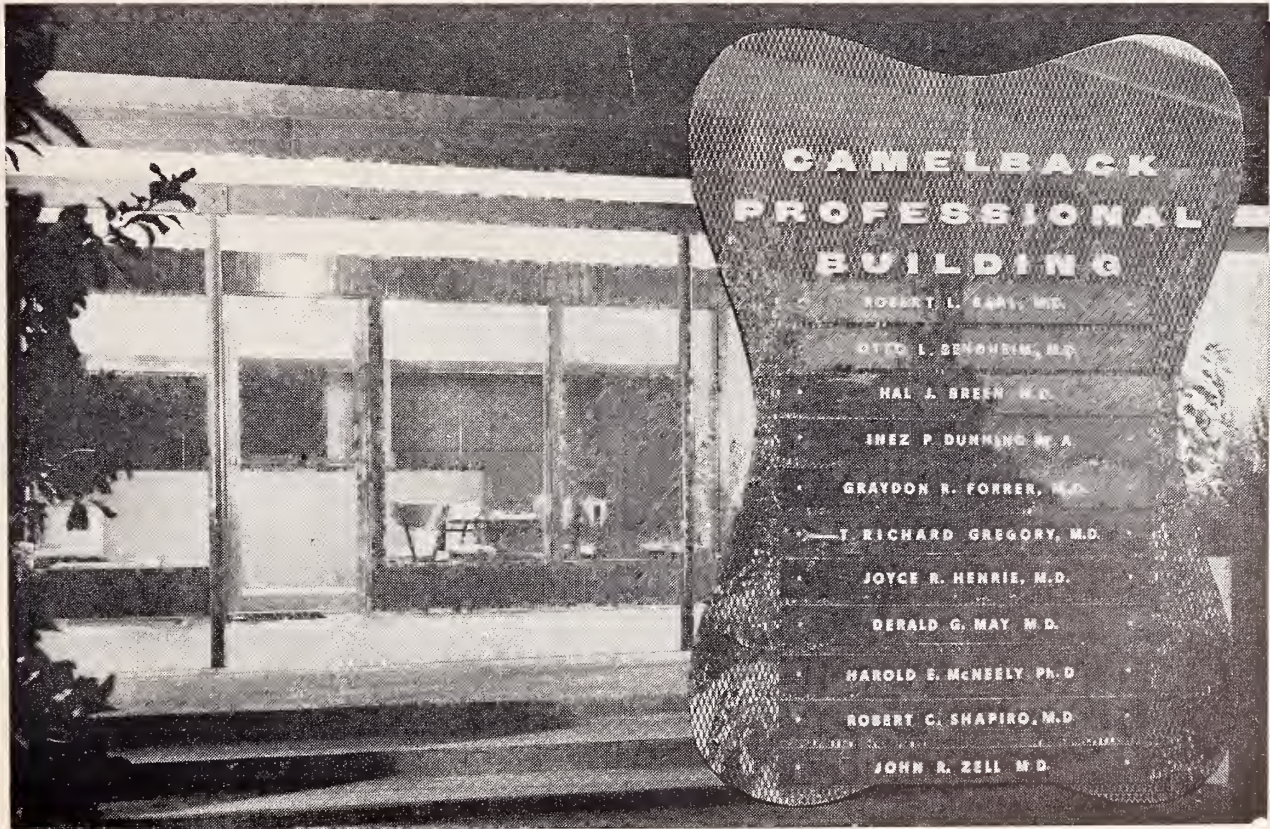


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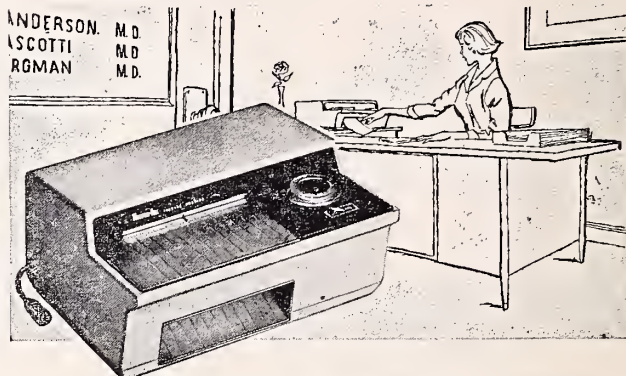
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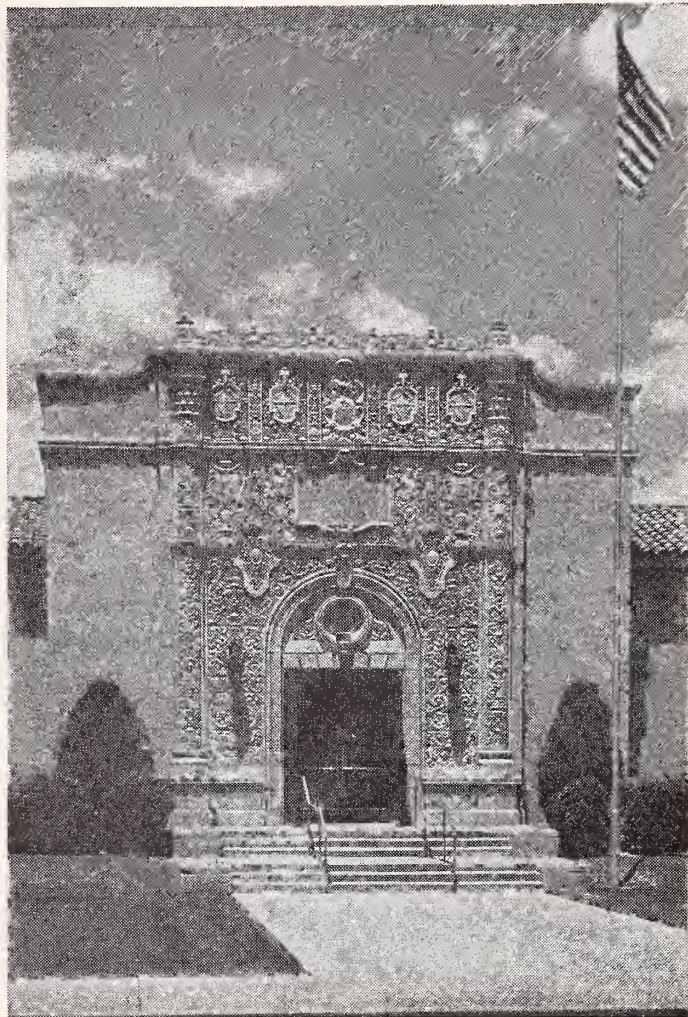
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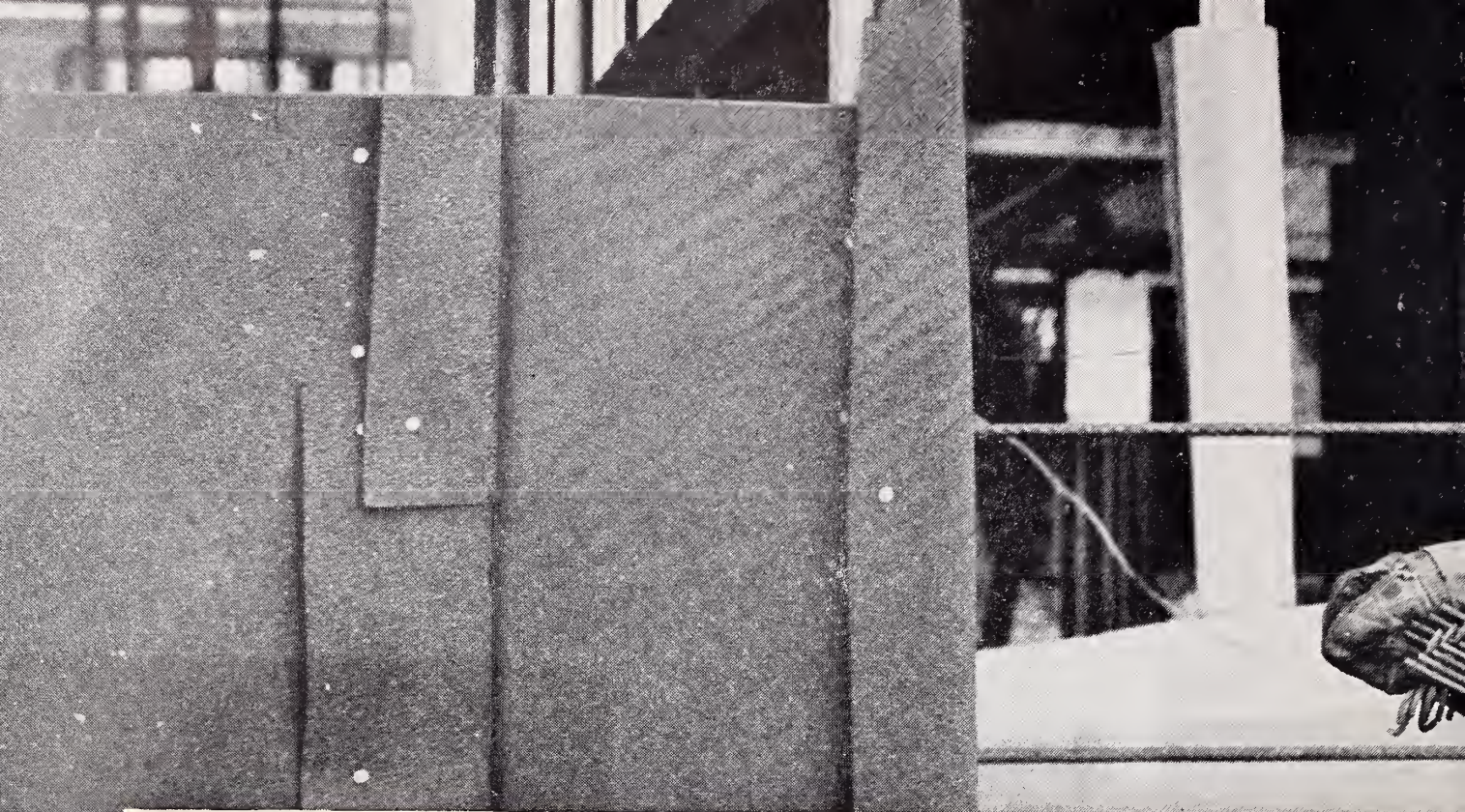
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February, 1961



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Arizona Medical Association Reports

Arizona Medicine

Vol. 18, No. 2



February, 1961

Professional Liaison Committee

Meeting of the Professional Liaison Committee of The Arizona Medical Association, Inc. held Sunday, November 13, 1960, Noel G. Smith, M.D., Chairman, presiding.

SUBCOMMITTEE REPORTS

Allied Professions

Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions, presented for the Professional Liaison Committee's review and approval, the proposed composition of membership of the subcommittee, consisting of Doctors Reed D. Shupe, Noel G. Smith, Marcus Westervelt, George Fraser and Robert H. Cummings, Chairman.

The Professional Liaison Committee regularly moved and carried the approval of the composite membership of the subcommittee on Allied Professions.

Arizona Osteopathic Society of Physicians and Surgeons

Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions, indicated that opportunity for a liaison meeting with the Arizona Osteopathic Society of Physicians and Surgeons had not been presented to date. It was

recommended that the full Professional Liaison Committee attend any initial meetings with the doctors of osteopathy in the State of Arizona, towards liaison on problems of mutual concern. *AMA Committee to Study the Relationships of Medicine with Allied Health Professions and Services — Final Report*

The Committee received the final report of AMA's Committee to Study the Relationships of Medicine with Allied Health Professions and Services, and will delineate its thoughts and recommendations at the next meeting of the Professional Liaison Committee.

Arizona Education Association

The Committee determined that George Fraser, M.D. of Tucson should contact Mr. Ellsworth A. Moe, Executive Secretary, Tucson Education Association in Tucson, and that Robert H. Cummings, M.D., Chairman, subcommittee on Allied Professions would contact Mr. Dix Price, Executive Secretary, Arizona Education Association, regarding liaison on problems of mutual concern between representatives of ARMA and the Arizona Education Association. It is anticipated that a report will be forthcoming following such visitations.

Tucson Public Schools — Sixth Annual Meeting — The American College of Sports Medicine

The Committee reviewed a letter from Lindsay E. Beaton, M.D., President, ARMA, to Mr. John L. Barringer, Director, Health, Physical Education and Recreation Department, Tucson Public Schools, Education Center, 1010 East Tenth Street, Tucson, Arizona, having reference to the transactions of the Sixth Annual Meeting of the American College of Sports Medicine, and anticipating interest and cooperation with the public schools in the advancement of sports and athletics, on a proper medical and educational level.

It was determined that such information be forwarded to Doctor Hugh H. Smith, a member of the subcommittee on Public and School Health, requesting contact with Mr. Barringer and subsequent report to the Committee.

It was moved by Doctor Payne, seconded by Doctor Wagner and unanimously carried that the report of Robert H. Cummings, M.D., Chairman of the subcommittee on Allied Professions, be accepted, together with its recommendations.

CAREERS AND ARIZONA AMEF

"Career Nights" Program

Albert G. Wagner, M.D., Chairman of the subcommittee on Careers and Arizona AMEF, presented his report and recommendations to the Professional Liaison Committee, appertaining to the subject of "Career Nights" programs, not only in the universities in Arizona, but all institutions of higher learning and high schools and submitted a format of procedure.

It was determined that Doctor Wagner would contact the (Association) District Directors for assistance in designing community representatives (doctors of medicine) to aid in development and activation of the "Career Nights" program.

It was moved by Doctor Frissell, seconded by Doctor Payne and unanimously carried that we accept the format for "Career Nights" programs as presented by Doctor Wagner.

AMA Resolution No. 41

The Committee received Resolution No. 41 from the AMA, encouraging medicine's story to high schools to increase qualified students applying for a medical education.

It was moved by Doctor Wagner, seconded by Doctor Payne and unanimously carried that

we accept and adopt the resolution of the American Medical Association.

AMA Resolution No. 2

The Committee reviewed Resolution No. 2 of AMA with reference to a statement of policies of the National Foundation.

It was moved by Doctor Cummings, seconded by Doctor Wagner and unanimously carried that this item of business be referred to Lavern D. Sprague, M.D., Chairman of the subcommittee on Physicians and Surgeons for clarification, with particular interest in the scholarship program as presented therein, and with the request that Doctor Sprague file a report of the investigation of this matter with the Committee.

AMA Report — Future Shortage of Physicians

The subcommittee was not in position to report on this item of business at this time, and it was deferred to the next meeting of the Professional Liaison Committee.

Society for Academic Achievement in Community High Schools

The subcommittee was not in position to report on this item of business at this time, and it was deferred to the next meeting of the Professional Liaison Committee.

It was moved by Doctor Frissell, seconded by Doctor Cummings and unanimously carried that we accept the report and recommendations of the subcommittee on Careers and Arizona AMEF and commend the committee for its excellent report.

GOVERNMENTAL MEDICAL STAFFS

Resolution — Medical and Chirurgical Faculty of the State of Maryland

The Committee reviewed the resolution of the Medical and Chirurgical Faculty of the State of Maryland regarding the problem of expansion of Veterans Administration Hospitals into the field of non-service-connected disabilities, and further reviewed Resolution No. 10 adopted by The Arizona Medical Association, Inc., by its House of Delegates in meeting held May 4, 1960 on the subject of Limitation of Federal Medical Care of all Veterans to Service-connected Disabilities.

It was determined that no further action was necessary in this regard.

Randolph School — Medical Advisory Board

William G. Payne, M.D., Chairman, subcommittee on Governmental Medical Staffs, reported

that none of the Arizona State supported schools have a medical advisory board constituted by such institution. The investigation of this situation continues and a report is anticipated at the next meeting of the Professional Liaison Committee. It is felt that this item of business may require legislation, since it appears that the governing bodies of these institutions are not particularly interested in adopting such regulations requiring medical advisory boards.

It was moved by Doctor Wagner, seconded by Doctor Frissell and unanimously carried that the report of the subcommittee on Governmental Medical Staffs, be accepted.

NURSES

Subcommittee on Nurses

Noel G. Smith, M.D., Chairman of the Professional Liaison Committee, presented a report received from Max Costin, M.D., Chairman, subcommittee on Nurses, following a meeting with representatives of the Federation of Licensed Practical Nurses and Doctors Max Costin and Francis Bean, on recommendation of Lindsay E. Beaton, M.D., President, The Arizona Medical Association, Inc.

"After several hours of discussion, it seems that I can summarize by saying that the areas in which L.P.N.'s feel that the physicians can be of some help are as follows: 1. At present there is no differentiation in most hospitals in the treatment of aides and L.P.N.'s, the latter having had a year of training, being licensed and part of an organization which regulates their ethics, etc. 2. The above situation makes for poor utilization of the potentials of the L.P.N.'s. Part of this lack of utilization also is due to conflicts between L.P.N.'s and R.N.'s and their area of activities. 3. At the present time licensure for practical nursing is permissive. L.P.N.'s would like us to support legislation making the licensing of L.P.N.'s mandatory in order to raise standards. 4. L.P.N.'s also are worried about possible pending legislation granting waivers of licensure over a broad area.

After this discussion, it was my opinion that any encouragement we, as physicians, can give toward a meeting of minds between R.N.'s and L.P.N.'s, as to defining work areas and allowing potentialities of many L.P.N.'s to be utilized, would probably work to the benefit of patients, hospitals and physicians. Both Dr. Bean and I have informally suggested to these leaders of

the L.P.N. group that they do their utmost to meet and come to some agreement with the R.N.'s, as a first step toward their better recognition."

It was moved by Doctor Payne, seconded by Doctor Wagner and unanimously carried that we accept the report of the subcommittee on Nurses.

AMA Division of Scientific Activities

Department of Nursing

The Committee received the report of the establishment of a Department of Nursing from the AMA Division of Scientific Activities, indicating liaison being available to the constituent State Associations.

No action indicated.

ASSOCIATION OF PHYSICIANS AND SURGEONS

No report.

PUBLIC HEALTH AND SCHOOLS

Ben P. Frissell, M.D., Chairman, subcommittee on Public Health and Schools, indicated a need and a desire for a change in the name of the subcommittee, from Public Health and Schools to "PUBLIC AND SCHOOL HEALTH."

It was moved by Doctor Frissell, seconded by Doctor Cummings and unanimously carried that henceforth, the subcommittee shall be entitled, Public and School Health.

Composite Committee Membership

The Professional Liaison Committee on recommendation of Doctor Frissell, accepted the composite membership of the subcommittee on Public and School Health to be: Doctors Stanford F. Farnsworth (Phoenix); Ben P. Frissell, Chairman (Phoenix); E. Henry Running (Phoenix); Hugh H. Smith (Tucson) and Noel G. Smith (Phoenix).

Raw Milk Legislation Report

As you will recall, an attempt to correct the existing situation regarding raw milk was made in the Legislature in February, 1959. This attempt was defeated in spite of the efforts of the Medical Association, basically due to the attitude of certain people in the dairy industry, although the cause was not helped by some of our own profession. We have discussed this problem with the State Health Department, with the County Departments in Maricopa and Pima County and with one of the sponsors of the bill. The unanimous feeling appears to be that this is not the right time to reopen the effort

with respect to this piece of legislation. The Health Department people assure us that the amount of raw milk being sold in the State on a commercial level is very low and they do not feel at the present time that it poses a real Public Health problem.

Birth Control Legislation

It was noted that the proposed recommended legislation having to do with the question of Arizona Revised Statutes on the subject of birth control and the use of contraceptives, etc., had been referred by the Board of Directors of ARMA to the Legislative Committee for review and recommendation.

It was moved by Doctor Cummings, seconded by Doctor Payne and unanimously carried that the subcommittee on Public and School Health make itself available to the Legislative Committee for preparation of revision of the Arizona Revised Statutes pertaining to birth control laws.

School Health Advisory Committee

Noel G. Smith, M.D., Chairman of the Professional Liaison Committee brought to the attention of the Professional Liaison Committee, the subject of "school health requirements" prior to obtaining a teacher's certificate in Arizona schools and its anticipated deletion from their certification program.

It was determined that a letter be prepared on the subject with anticipated distribution to the Arizona State Board of Education, Arizona State Department of Public Instruction and other departments of interest, and submit it to The Arizona Medical Association for immediate recommendation, acceptance and mailing, at an early date.

It was moved by Doctor Payne, seconded by Doctor Cummings and unanimously carried that we accept the report of the subcommittee on Public and School Health, together with its recommendations contained therein.

WOMAN'S AUXILIARY

No requests for information or assistance being in hand from the Woman's Auxiliary to The Arizona Medical Association, no report was given.

Loel A. Stapley, M.D.

Secretary

by Leslie B. Smith, M.D.

President-elect

Acting Secretary

INDUSTRIAL RELATIONS COMMITTEE — RECOMMENDATIONS

Too frequent instances of disagreement between Medical Attendants of Industrial cases and the Legal Department of the Industrial Commission makes it necessary to call to attention the proper position of both groups in handling these problems.

These disagreements have arisen principally from the fact that, inadvertently, the Medical Attendant, has, at times, extended his findings to include a finding on the question of liability. This, of course, is the sole function and prerogative of the Commission.

Simply stated the function of the Medical Attendant is to report to the Commission as to what happened to the patient medically, using such terms to best interpret the status of the patient.

Following this report it is the duty of the Legal Department to decide whether the case is a concern of the Industrial Commission of Arizona. These responsibilities do not overlap. The Legal Department may at times request further opinion of the Medical Attendant but the status of responsibility does not change.

* * *

The Industrial Relations Committee recommends the use of the diagnostic form of the American Psychiatric Association in reporting psychiatric cases. The recommended form is as follows:

Diagnosis:

- a. Predisposition
- b. External Precipitating Stress
- c. Degree of Incapacitation

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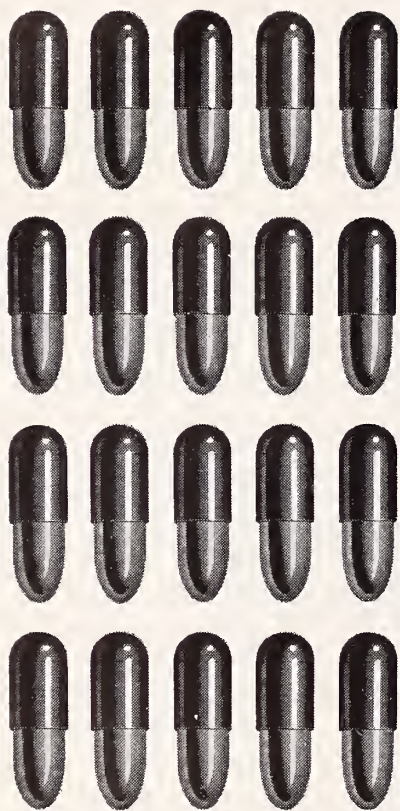
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Griseofulvin, a New Oral Treatment for Ringworm*

by

J. Walter Wilson, M.D.**

Los Angeles, California

An interesting and enthusiastic article which deals with the advantages, as well as the limitations, of the drug, Griseofulvin. Significantly pointed are the remarks concerning proper case selection for administration of Griseofulvin. (R.L.D.)

I BELIEVE Griseofulvin is destined to become one of the "miracle drugs," capable of becoming as well established in our armamentarium as penicillin was, but I think it will have to overcome some major disadvantages, the principal one being that it will not cure "everything."

I do not have color illustrations and this is not due to any lack, because I have about 2500 color illustrations of fungus diseases in one stage or another. It is because I have become convinced that the use of such pictures in a lecture of this sort will be misleading. For example, suppose I show a typical picture of a certain form of ringworm, and I succeed in implanting in your minds the picture of that disorder as it should be — and you carry that with you and you see a case which presents the same sort of lesions — and you say, "This is ringworm, therefore, let's treat it as such." Fifty per cent of the time, at least, you will be wrong, because it is impossible to differentiate fungus diseases from non-fungus diseases by visual means alone. If you can learn

to tell the difference between the herald spot of pityriasis rosea and a single spot of ringworm, you are a better clinician than I.

It has been my very good fortune to have had experience and training under three dermatologists whom I consider deserve to be rated among the best clinicians in the world who freely admitted that it is impossible to differentiate fungus diseases from non-fungus diseases by clinical appearance alone.

And here, very early in this talk I usually lose part of my audience, apparently because I have to say that a microscopic examination of a bit of tissue from the edge of a suspected lesion is almost a necessity. And many listeners think, "That's too difficult for me," so they cease to be interested in anything further that I have to say. This examination is not difficult. It is one of the simplest of procedures and can be done in a matter of 40 seconds. A tiny bit of tissue can be taken from the edge of the lesion while you are inspecting it. It takes no more time to have in your hands a small instrument, a No. 15 blade on a Bard-Parker knife, and take a small piece

*Prepared for oral delivery before the Arizona Chapter, American Academy of General Practice, Scottsdale, October 17, 1959.

**Clinical Professor of Medicine (Dermatology) University of Southern California School of Medicine.

about as big as the end of a kitchen match. Give it to a nurse if you wish and have her put it with a drop of potassium hydroxide on a slide, put on a cover slip, warm it for about 10 to 15 seconds, press it down and call you to the microscope to see whether it has fungi or not. You can do it after you get to the microscope in about 10 to 15 seconds.

And I think to use this new medicine, Griseofulvin, a technique such as this is almost a necessity. Griseofulvin has a little bit of anti-inflammatory activity, so I suppose it will help to a small extent a number of non-fungal inflammatory disorders, not only of the skin but elsewhere, just as aspirin helps inflammation to a certain extent. It also has a little anti-mitotic activity such as similar to but not nearly as efficient as, for instance, colchicine or podophyllin, so I suppose it will even make some neoplastic disorders decrease a little in size but not efficiently enough for this to become a satisfactory treatment for those disorders. So that if this medicine is going to acquire any fame, it's got to rise above the fact that all too often it's going to be used in non-fungal disorders which it has no chance to cure in the first place, thereby discouraging both patient and doctor. It's too expensive to try simply as a trial — such as, "Let's see if two weeks of it will cure or will help?" Well, two weeks of Griseofulvin at the proper dosage will cost about 18 to 20 dollars, a little too much for many disorders which could be cured with two-and-one-half dollars worth of other properly selected medicaments.

The development of a new drug like this makes a very interesting story, and I'm very happy to have had a little interest in it a long time ago. In about 1939 it was realized that the medical profession possessed a very efficient and relatively safe drug in the form of penicillin. The only thing wrong with penicillin in those days was that it was too expensive; it was hard to make, a gallon of medium manufactured only a few milligrams of penicillin; and it was realized that if this source had to be relied upon, penicillin was not going to be available in adequate supply. And so the bacteriologists and mycologists started very diligently looking for other sources of penicillin, that is, for other species of *Penicillium*, which might produce it

in larger quantity per gallon of medium. And they did find one, particularly, which did a marvelous job furnishing almost a hundred times the yield of penicillin.

But while they were making this search, of course, they had to culture a lot of different *Penicillia* and extract them and find the active principles that were produced; and they found a few dozen materials, which they tested against bacteria which proved to be not successful or not efficient enough. They simply labeled these and put them on the shelves for future reference. P. W. Brian in Britain in the '40's began to look through all of this collection to see if he could find substances which were useful in agriculture, particularly against some of the fungus diseases that involved tomatoes and other forms of produce. And he came upon this particular one which concerns us today, Griseofulvin. He found that when this material was sprayed upon the fungus which causes a certain kind of mildew on tomato vines that it inhibited the advancement of the fungus. It did not kill it, but it caused the advancing filaments of the tiny plant to shrivel and coil up. He called this the "curling" factor. And to this day this is the picture that I want to leave in your minds of the activities and the action of Griseofulvin. It does not kill the fungus, it simply forms an invisible wall through which the fungus doesn't penetrate. It blunts the advancing tip just like a solid substance would blunt the advancing tip of a hypodermic needle or bend it out to the side and start it to curling.

This interesting substance was used in agriculture experimentally on small tracts of land, because it was too expensive and the quantity too limited to be used as an efficient help for the farmer on a large scale. But James C. Gentes of Glasgow, Scotland began also to work with it in animal experimentations, and he found that, when given to guinea pigs that were infected with superficial fungi, Griseofulvin cleared the infection. Upon investigation he found that it cleared the fungus infections because it became deposited in the newly-formed cells of the epidermis and of the hairs in such a manner that it grew outward as these cells grow outward to be eventually shed and to push the fungus away.

Now I, among others, long ago pointed out that if a fungus is going to keep its job as an infecting agent on an animal, it must work at it. It must grow downward into the follicle and inward below the nails at a speed at least equal to the outgrowth of the nails and hair, because our bodies are continually producing new skin, hair and nail cells to replace the wear and tear at the periphery; and these form a continuous layer all over the surface of the body. And these cells are always moving outward at a certain speed regulated by the rate at which this activity at the basal cell layer takes place. I called this the "epidermal effluvial current". The outflow of keratin and cells which produce keratin is thus a continuous process from within outward. It varies a little in speed according to individual patients, but it is always there. If a fungus were to slow down sufficiently in its growing activities, it would be pushed completely off of the human body. It would be pushed off of a thin area of skin like the back of the hand in perhaps 10 days. It would be pushed out of a hair follicle in perhaps 15 to 20 days. It would be pushed completely away from a nail bed in about $4\frac{1}{2}$ to 6 months. But it would eventually be pushed completely away if it stopped its ingrowth.

Therefore, anything which slows down the ability of a fungus to grow inward would help to cure a fungus disease of this type, and anything which could be laid down as a layer when the new keratin materials were formed and which persisted in its ability to repress the advances of fungi as it grew outward could produce a cure. And that is the mechanism of Griseofulvin.

In 1955, in Los Angeles, there was the First International Congress on the Treatment of Fungus Diseases. And famous mycologists came from India, the Philippines, Australia, all the countries of South America, from England, France, Germany, even from Czechoslovakia. One of the tasks which was assigned to me as one of the organizers was to prepare a short chapter entitled "The Possible Approaches to the Treatment of Fungus Disease," and in the first paragraphs I stated that "the ideal treatment for fungus disease would be to find the ideal fungicide. The ideal fungicide should have the following attributes: it should be colorless and

odorless and tasteless and soluble in all body fluids and administratable by mouth in amounts which could provide all the body cells of the human body with the ability to resist all pathogenic fungi wherever they were located. It should be absolutely non-toxic to human beings." I also said that "the ideal treatment for even the superficial fungus infections would be a drug which could be taken by mouth and then be contributed into the keratin as it is formed by the hair and nails and persist in being able to repress the activities of a fungus as the keratin grew outward to push the fungus eventually off the human body." In the next sentence I stated that "this would require a collection of fortuitous events such as no serious scientist expects to see happen in the near future."

Dr. James C. Gentles of Glasgow, Scotland selected the first paragraph and left out the last paragraph, and thus quoted me as having predicted Griseofulvin. They say that among all medical papers the best are the shortest, and Dr. Gentles' paper is only two small pages. It was the most exciting thing that has happened in the field of fungus infections in 50 years.

I got some material from Dr. Gentles almost a year ago, and we started to experiment with Griseofulvin. It has long been realized and emphasized by many that the principal reason we could not cure superficial fungus infections with ease was the fact that no one had devised a chemical or a carrier vehicle which could be caused to penetrate as deeply into the keratinized structures of the human body, the skin, hair and nails, as the fungi can penetrate in their normal parasitic activity. When we consider that a nail which looks to be involved by inspection half way from the peripheral tip to the base can be shown to have fungi within 1 mm. of the place where this nail begins to originate, we realize the depth of penetration of this fungus, and the impossibility of making any medicines penetrate deep enough through that solidified material to kill the advancing tips of the fungus. All that could be done would be to hinder the parent stock of the fungus somewhat in the manner that bombing the home front can deter a little bit the advancing army because of failure of food supply or something of that sort.

Previously we were faced with several skin disorders caused by fungi, notably certain forms of ringworm of the scalp and of the feet and nails which for all practical purposes were absolutely incurable. Before the advent of Griseofulvin I've said many times that if and when I could qualify as a specialist in fungus diseases, I would be a specialist in a useless field, because while I was capable of making the diagnosis beyond a shadow of a doubt, I had then to tell the patient, "Now that I know what is the matter with you, I can't do anything for you except to tell you not to spend hundreds of dollars every year on salves or paints which can't cure you." However, now we have a method of approach. I want to emphasize again the fact that it is not possible to differentiate fungus from non-fungus diseases by external examination alone. Not over 30% of all sore feet are due to fungus; of scalp disorders, not over 30% in children and 10 or 15% in adults are due to fungus. Fungal diseases are rather rare percentage-wise compared to other ailments, and I believe that before Griseofulvin is used, at least a potassium hydroxide direct microscopic search for the presence of fungi should be made. This is extremely easy, and I wish it could be more popularized. In my experience it takes much less time to perform than it does for me to talk enough to convince my patients that I'm so good at diagnosis that I don't have to use the laboratory.

Griseofulvin is now available all over the world, and in reasonably good supply. It comes in 250 mg. tablets, and the standard dosage so far is four of these 250 mg. tablets daily for an average sized adult somewhere in the neighborhood of 140 to 150 pounds. We have been trying all year to find dosage schedules which would match this drug against certain diseases and give us more definite instructions as to its use, and we are still unable to answer some of the questions which come up. First, we have been extremely interested in finding whether or not a smaller dosage would be efficient, because a moment's calculation will show that if we treated a person with ringworm of the nails continuously for six or eight consecutive months (which might be necessary to make nails grow out completely normal since it takes that long for nails to grow from the point of production to the tip), it

would cost the patient from \$150 to \$200. And if as we suspect, to keep him from being re-infected, we might still have to continue giving him the drug in the manner of insulin for diabetes, and he would be faced with the fact that to keep his nails clear would cost about \$600 a year. And in my practice, the majority of my patients I believe would say, "This is the difference between my driving a car or not, and I think I would rather ride in an automobile than to cure my nails." And so I think we will have to consider this drug as something less than a wonderful victory unless we can find a lower cost method. Eventually the cost of the drug may come down, but right now it is between 20c and 25c a tablet, which means something in the nature of .80c to \$1.00 a day. It's a little too expensive, therefore, for just a therapeutic trial, to look at a rash and say, "Well, let's see if Griseofulvin will cure it." This is feasible with things like penicillin or tetracycline, because four days or so usually will tell you whether it is going to work or not. With Griseofulvin it takes several weeks, or with some diseases, one, two, three or as much as six months.

Fungus infections fall in two great categories, the superficial and the deep ones. There are eight clinical syndromes caused by fungi which can cause death of the patient. *Coccidioides* is the one with which most of you are most familiar, histoplasmosis being the second; and then nocardiosis, actinomycosis, sporotrichosis, cryptococcosis, the two blastomycoses, and chromoblastomycosis. This drug is not efficient for any of these disorders with the possible exception of nocardiosis, and that seems even a little doubtful at the present time. So it is not the panacea for all fungus disease. It has absolutely no effect on any fungus which has another method of reproduction other than the advancement of the thread-like tip of a hypha. If a fungus has another method of reproduction in tissues, such as the formation of a mother cell with endospores within it as in coccidioidomycosis, if it can produce buds like blastopores, then this drug does not affect it at all. The fungus goes on with its work, simply falling back on its ability to reproduce in a way that this drug has no effect upon. This drug only acts because it blunts the tips of advancing filaments. The

most important point is that it has absolutely no helpful effect upon moniliasis, and moniliasis is a rather common superficial fungus disease in toes, groins, rectal area, around the mouth and especially in the mouth of the newborn. It is probably going to be demonstrated that it, like tetracycline and other drugs of similar ilk, actually has a harmful effect and will make moniliais worse.

We use culture methods as well as microscopic methods. It takes only a fraction of a minute to implant a culture which at times will reveal monilia where I thought there was a different fungus. Thus, even if I had given the patient some Griseofulvin at first, about four days later I can say discontinue it, knowing that it will do no good.

There is another skin disorder, tinea versicolor, which consists of differences in the scaling and pigmentation of some areas of the trunk of certain individuals. It is never painful, itchy, nor inflammatory, but looks bad. Griseofulvin will not benefit it. We have had several patients who have two types of fungus infection, one which can be cured with this drug, and tinea versicolor, and we have cured the one completely while the tinea versicolor remains uninfluenced. So Griseofulvin is not a panacea for all fungus infections. It has to be used for those which it can help, and I believe it should be omitted from the schedules for the persons who possess disorders which it does not have a chance to help.

Thus far Griseofulvin has been non-toxic. Maybe that's just a little too flat a statement because we have ourselves observed two cases of morbilliform rashes which proved to be due to Griseofulvin, clearing after the drug was stopped and recurring when the drug was given again. Both of these patients thought that this eruption was more troublesome than their fungus infection and stopped the drug. In a series of almost a hundred and fifty which we have had, the only other patient who stopped the drug was one who got headaches from taking the drug. We have had two or three other people complain of headache, particularly during the first few days of administration, but who were able to continue the dosage. We have had two

or three people complain a little of upset stomach and nausea and one who said it caused a diarrhea for several days, neither of whom had to stop the dosage. However, I can remember very vividly in 1937 when I talked to various hospital staffs on the sulfonamides which were then new and the chemistry of them, five or six sulfonamides of different chemical structure which had different effect, principally because these solubilities made them concentrate in certain parts of the body. Some stayed in the gut, and some went to the kidney, and some went to the central nervous system, etc. This is unimportant except that I remember very well the statement that I made in those talks in 1937 and which was then generally believed. . . . "If you want to use sulfonamides, go ahead, they're harmless." I can remember also equally well in 1942 when we first used penicillin how innocuous penicillin was supposed to be. These statements you all know would be very silly at this time because we have hundreds of examples of harmfulness from both of these materials, some of them very serious. It has been estimated that there have been at least a thousand deaths caused directly in the United States by penicillin. Penicillin is losing its effectiveness and becoming more and more dangerous.

Very early in the study of a new drug its chemical, poisonous toxic effects become realized, so I think that even now with a year's experience we can say Griseofulvin is not a potent "chemical poison" from a basically poisonous standpoint. However, what take a much longer time to show up are the allergic manifestations which can be developed. Anyone can develop an allergy to anything which is touched or eaten or inhaled at any time after the first time that material contacts our body cells. This may be after the first time, the second, or only after the ninth, the 437th or perhaps the 17,953rd time that the cells contact that material. Thus, it takes a long time, even four or five years, to begin to get reports of the allergic potentialities of new drugs.

I had the very disconcerting experience of being one of the first to observe the toxic effects of asterol, which you will remember as a topical fungicide. We were using it in a clinic for tinea capitis when a small boy began to

have central nervous system convulsive seizures. After some studying of encephalograms in the hospital, it was concluded that probably he had an epileptic-form seizure, just as a certain percentage of children do have that trouble and do have convulsive seizures. It was only after he was sent back to the clinic as recovered and we began to paint the same material on his scalp again and he went through the same process again that we became aware of the fact that this medication could cause such difficulty. About the same time I gave asterol to a baby who was only three months old who started with thrush and got moniliasis all over the body. On the 12th day the baby began to have convulsions. And after sufficient study we came to the conclusion that this was caused by absorption through the skin of the medicament, asterol. At the time that these cases were reported, the paper was held in abeyance for about five months until there were two other papers from other parts of the country just to be sure that this was not a happenstance, that it was likely to be a reliable conclusion, and then all three were published in one issue of the Journal of the American Medical Association. During the next three years all such cases were added together, and only 17 were discovered in the United States. At that time the company estimated that 2,500,000 packages of this material had been sold and used on human beings to produce 17 such instances. This will illustrate the difficulties in estimating the toxicity of a drug. It takes a long time to know such long-range toxic effects. Just as sure as the sun rises tomorrow, there will eventually be toxic or allergic effects in certain individuals to Griseofulvin.

Ringworm of the superficial variety is the disorder which can be cleared or helped by Griseofulvin. And ringworms of the superficial variety can be divided best into the same divisions that you as clinicians would like to use. We simply say, "Ringworm is caused by fungi, and ringworm can be classed according to the part of the body in which it exists." So we speak of ringworm of the scalp, tinea capitis, ringworm of the beard, ringworm of the body, ringworm of the groin, ringworm of the feet and hands, and ringworm of the nails. And each one of these presents a little different picture and a

little different form of treatment. Griseofulvin will clear ringworm of the scalp in children in approximately three to six weeks. Some researchers are experimenting with a single, one-day massive dose of the material, and some reports seem to indicate that we may be able to cure ringworm of the scalp by a one-day dose of 5 grams of Griseofulvin. I have not tried it yet, and I would not advise you to use it until two things have become evident. One is the possibility of toxic effects of large doses such as that, and second, an estimate of the percentage of reliability of the cure. We have been using a dosage calculated somewhat on the basis of the poundage of the patient in relation to a normal 150-pound adult and continuing it for a minimum of two weeks and in most instances for four weeks. Wherever controls are available, we continue it until we have had two negative cultures. We have long had a backlog of cases of ringworm of the scalp, particularly of the more resistant varieties, the kinds that are caused by *Microsporum audouinii* (the type that can be transferred from patient to patient and child to child in epidemic fashion), and an ever increasing amount caused by the organism coming from Mexico, *Trichophyton tonsurans* (which in Los Angeles ranges now between 30- to 50% of all of our ringworm of the scalp and which does not clear spontaneously at puberty or with topical application with any great ease), for which I believe Griseofulvin is going to be extremely valuable. Our statistics are beginning to look very good, and in sufficient quantity to be significant. After administration of the drug, the hair should be clipped because the tips of the hairs still have viable fungi which could reinfect the roots.

Ringworm of the body has always been easily cleared; almost any drug will do it — sulphur and salicylic acid ointment or any of the proprietary remedies. It's not a difficult problem at all, and Griseofulvin, while efficient, will probably cost more than necessary except in extensive cases.

Ringworm of the groin has always been a problem because an effective fungicide is often irritating to the scrotum or the labia of a certain percentage of people. Griseofulvin is ideal in these cases because it has absolutely no irritat-

ing effect. Most of the time the patient has been using something irritating before the doctor sees the eruption, and the relief begins at once to be evident from its omission, while Griseofulvin clears the entire disorder within 10 days.

Ringworm of the feet occurs in two types. One consists of severe, acute, hot, red, tender, swollen, macerated toes and soles. The other is the very antithesis of this and exhibits dry, scaly, thick, hyperkeratotic involvement with some reddening and some itching of the soles and perhaps the palms which can last literally for 30 to 40 years without ever clearing, only varying a little in its extent. The acute vesicular type, which most persons have had at some day in some summer, usually beginning as maceration and sweating between the 4th and 5th toe particularly, is not a chronic fungus infection in my opinion. It is a recurrent exposure to fungus under conditions in which the fungus loves to live. Griseofulvin serves very little purpose in these cases. By the time it has time to have been absorbed and to have contributed enough to the keratin, the patient can be rendered well by other means. With antiseptic soaks such as potassium permanganate, and the use of drying powers, cure can be obtained in a few days and at a cost of about \$2 where he might spend \$25 for Griseofulvin. I do not believe this drug has a great future in this particular place. However, for the chronic hyperkeratotic form of ringworm which can go on for years and years, Griseofulvin is the very best thing that has ever happened. It is a boon beyond compare. I have no more grateful patients than those in whom this diagnosis has been confirmed and who have had Griseofulvin.

However, there are other syndromes which can mimic this infection so that I believe it is very important, before one puts a patient on this material for several months at the expense that would be involved, to make certain that this is not just one of the hyperkeratotic disorders which has no relationship to fungus disease. I am at present still of the opinion that the person who has this particular chronic type of infection due usually to *Trichophyton rubrum* has

it because he is immunologically defective. He is not like the rest of us. He is perhaps one in 50 out of the general population who becomes infected with this bug because he is peculiarly susceptible to it. His skin furnishes something this fungus loves, or it lacks something which all the rest of us have which this fungus hates. I believe he can even transmit this peculiar skin propensity to his children genetically. Certainly the wives or husbands of people who are infected with this disease for years and years do not acquire it very frequently, probably not more than one in 50, one in 100. If we were to rub this fungus on 100 normal people, we would probably succeed only in infecting one or two of them. Now this very fact makes me discouraged in the use of a drug of this sort, because even if I am successful in pushing all of the fungi off of his body by using this drug, I think he's a likely candidate for a re-infection. I am sure he has a sea of spores in his home, his automobile, his office; and, of if he's a traveling salesman, he has deposited spores everywhere he travels. I believe he will become reinfected right away or at least some time in the near future. So at the present time, while I still have faith that Griseofulvin will do a tremendous job, perhaps even a complete clearing, it probably cannot keep a patient from being reinfected unless he continues to take it in the same manner that we use insulin for diabetes.

This is also the exact story with ringworm of the nails. Ringworm of the nails is so difficult to treat that this is the only drug that we have ever had which is really helpful, yet I think we are going to find that most of such cases are due to *Trichophyton rubrum* and that we have to use the drug at intervals throughout the patient's life in order to keep him from being reinfected.

I have never been a great drug enthusiast and have written derogatorily in the past about many topical fungicides. However, I sincerely believe that Griseofulvin, exerting as it does its effect from within outward, is a great advance in our therapy and gives great promise.

An Analysis of Staphylococcic Types In the Phoenix Area

Roy M. Johnson*

Tempe, Arizona

A report on the study of staphylococcal cultures obtained in two Phoenix hospitals over a one-year period. Typing done on basis of in vitro antibiotic resistance and the incidence of resistant "strain" appearance noted. Emphasis on good asepsis and isolation is made with the thought that new resistant strains will continue to appear even with the usage of new and different antimicrobial agents.
(RLD)

STAPHYLOCOCCUS *pyogenes* has been of particular concern to hospitals across the world for the past several years, particularly as regards strains showing an increased resistance to antibiotics. Some hospitals have been closed and others severely limited in their operation due to an abnormally high incidence of this organism. The U. S. Department of Health, Education and Welfare has published an excellent review of this problem (1).

In keeping with the philosophy that prevention is better than cure, a co-operative study was undertaken in two Phoenix hospitals regarding the incidence and in vitro antibiotic resistance of staphylococci in these hospitals over a one-year period.

MATERIALS AND METHODS

Routine antibiotic sensitivities were made and recorded on all staphylococcal cultures received by the hospital laboratories concerned. These reports were then analyzed and segregated into antibiotic resistant types. The incidence of such types was plotted against time. The following coding system was used to designate staphylo-

coccal types resistant to the following antibiotics: A, aureomycin; St, dihydrostreptomycin; P, penicillin; S, triple sulfa; T, terramycin; Po, polymyxin; Te, tetracycline; E, erythromycin; C, chloromycetin.

RESULTS

In Hospital A, three type strains were found to predominate in a preliminary two-month survey. These were (AStPPoTE), (Po) and (AP-PoT). These types were the major types found during the rest of the year with the one addition of (AStPPoT). This group of four made up better than eighty per cent of the coagulase-positive staphylococci in the hospital. Table 1 shows the distribution of antibiotic sensitivity among 189 cultures resistant to one or more antibiotics.

TABLE I
Distribution of Antibiotic Resistance Among
Staphylococci in Hospital A

Resistant to:	Number of Cultures	Per Cent of Total*
Penicillin	75	39
Terramycin	148	79
Polymyxin	143	77
Streptomycin	126	66
Aureomycin	121	64
Erythromycin	45	23
Chloromycetin	18	9

*A culture resistant to two or more antibiotics was counted in all categories.

*Life Science Division, Arizona State University, Tempe, Arizona

Figure 1 shows the percentage of penicillin sensitive staphylococci in Hospitals A and B for a ten-month period.

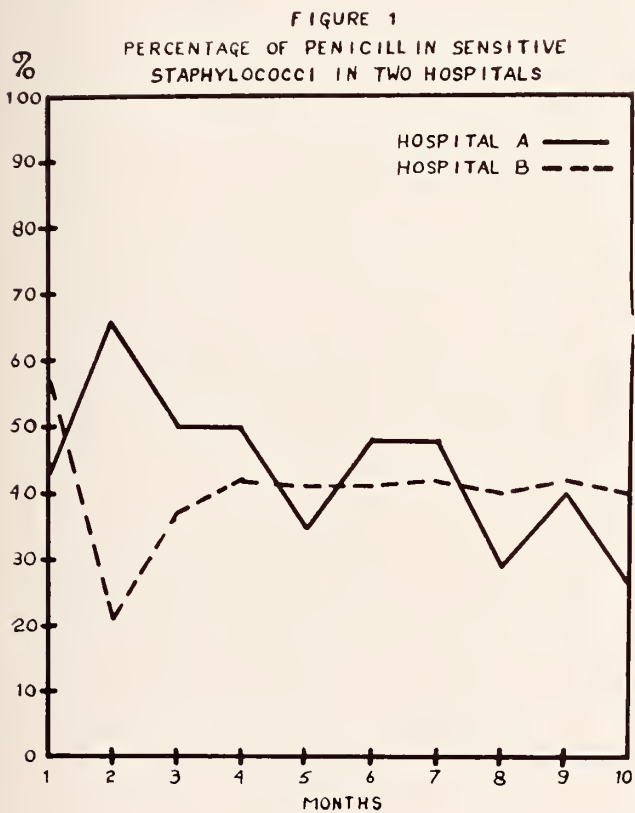
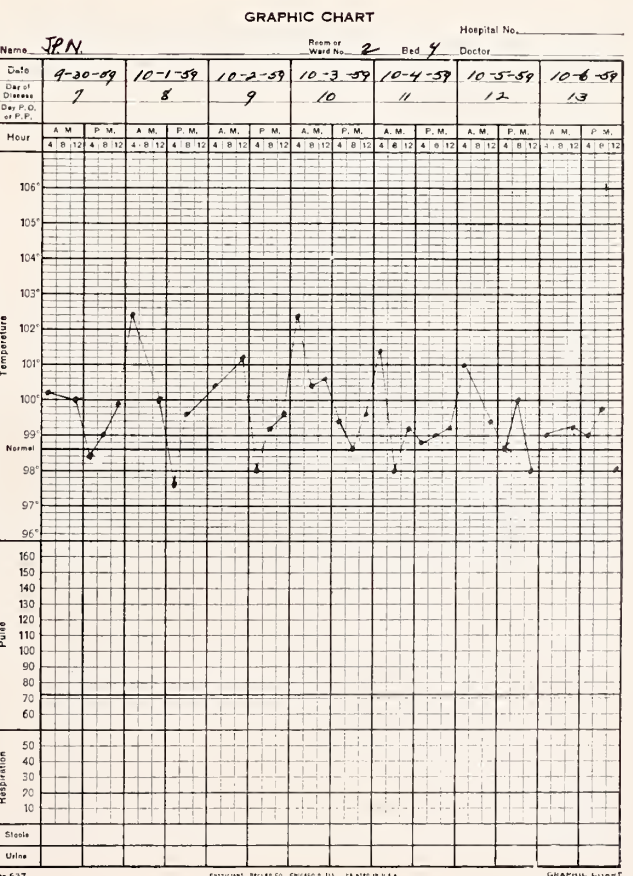
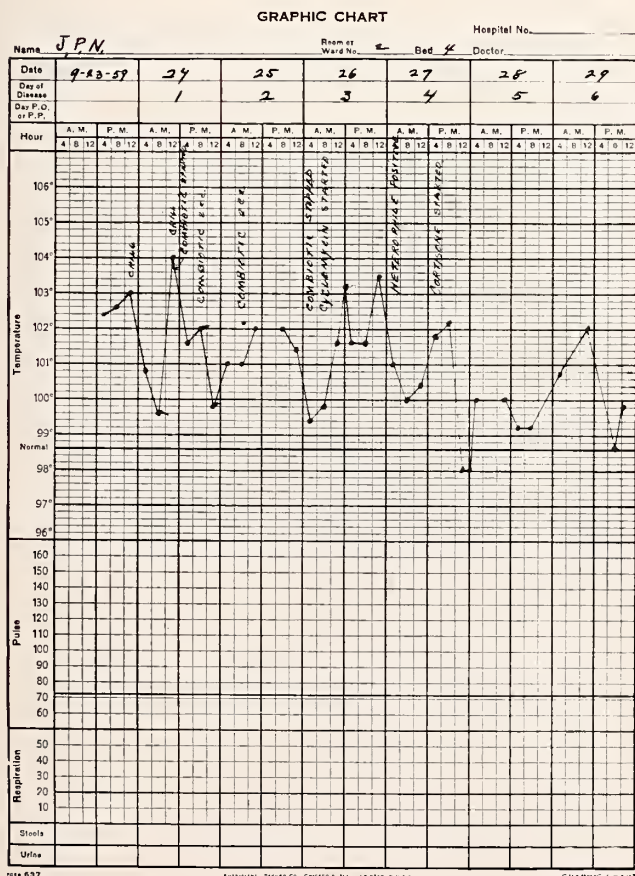
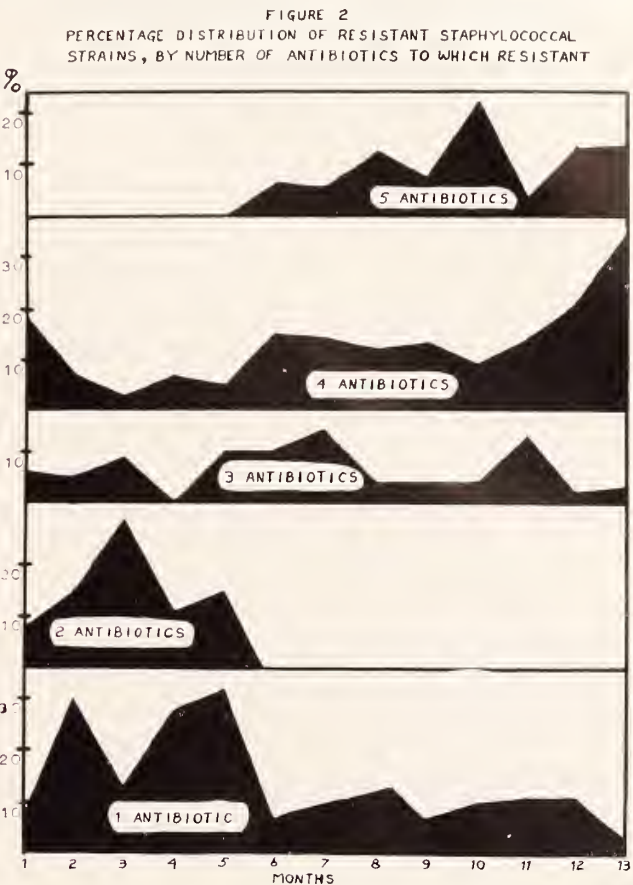


Figure 2 shows the percentage distribution of selected types in Hospital B for a thirteen-month



period. Cultures listed as one, two or three antibiotic resistant refer to penicillin, aureomycin and streptomycin singly or in combination. Four antibiotics is the addition of tetracycline to the former three, and five antibiotics is the addition of erythromycin to the previous four.

DISCUSSION

The incidence of penicillin sensitive staphylococci may be used as an indication of "street strains" of the organism, and they are not a clinical problem. Both hospitals showed a fluctuation around forty-fifty per cent of such strains. The remaining fifty-sixty per cent are potentially dangerous. A general decrease of percentage of sensitive strains, as indicated for Hospital A, may be regarded as a build-up of resistant strains and is cause for concern.

The question arises as to whether these resistant strains "just occur" at random or whether there is order to their occurrence. The persistence of antibiotic types in Hospital A would suggest a lack of randomness. Similarly, the gradual increase in staphylococci resistant to four and five antibiotics occurring simultaneously with a decrease in strains resistant to only one or two antibiotics in Hospital B (Figure 2) suggests an orderly mechanism in which resistance to a new antibiotic is superimposed upon available resistant strains.

Two mechanisms may be postulated to explain the increased resistance of strains: mutation and selection of resistant types, or interchange of nuclear material resulting in hybrid populations combining the resistance of their parents. In either case, it is apparent that resistant types can and do develop within a given hospital, and that keeping the organism and the patient separated by the well-known techniques of asepsis and cleanliness as well as the considered use of antibiotics in treatment is to be desired. While new drugs may alleviate a given situation, there is little reason for believing that new resistant strains will not develop in time. It is significant in this regard that more strains are sensitive to penicillin than to many other antibiotics.

SUMMARY

A survey of antibiotic resistant staphylococci was conducted in two hospitals as regards incidence and regularity of types. The data show a steady incidence as well as a constancy of increase in resistant types. The implications of the findings are discussed.

REFERENCES

1. Selected Materials on Staphylococcal Disease 1958 Public Health Service Publication Number 627, edited by D. S. Martin. 237 pp.

Editorial Comment: The system of typing leaves much to be desired as far as actual "strains of Staph" identifiable with phage typing are concerned.

Two investigators at the Stanford University School of Medicine have found the explanation for the severe diarrhea which is the major cause of death in cholera patients. The husband-and-wife team of Geraldine and Frederic Fuhrman reported at the American Physiological Society meeting at Stanford that the toxin given off by the cholera organism inhibits the absorption of salt by the intestine.

This largely prevents the absorption of water, since the water is taken up only together with salt. Accordingly, water accumulates in the intestines and diarrhea occurs.

A Quick Ambulatory Control for Mononucleosis

M. R. Chappel, M.D.*

and

John E. Chapman, M.D.†

Tucson, Arizona

Mononucleosis cases treated by steroids (Cortisone) improve and return to school sooner than cases treated otherwise.

Cortisone is a safe method of treatment and if used early, probably prevents complications.

Steroids, Penicillin or Achromycin have no effect upon the length of time required for the heterophile to return to negative.

The height of the positive heterophile titer has no bearing upon the severity of the illness.

Antibiotics have no effect upon mononucleosis but are used by the staff on the theoretical basis of preventing secondary infection while using an anti-inflammatory agent.

Liver function tests, sedimentation rates, repeat heterophiles, blood cultures and other expensive laboratory tests are unnecessary in most cases and only add to the expense of the illness.

IN the past most students who have had mononucleosis were absent from a few weeks to one semester because of their illness. This is unfortunate and unnecessary, for approximately 98 per cent of the patients with mononucleosis can, with proper treatment, feel well enough to attend classes. This has been proven in over sixty consecutive cases of mononucleosis treated at The University of Arizona's Infirmary during the last two years, twenty-four of these cases having occurred during the first semester of the 1959-60 school year.

The rationale of this treatment is based upon original research done at the University of Illinois under the leadership of Charles H. Drenckhahn, M.D., an internist of national reputation, and Lester M. Dyke, M.D., Director of the Student Health Service at the U. of I. at that time. Doctors Kensie, McLane and myself (Chappel) collaborated with Dr. Drenckhahn in this original project. Due to the dispersal of various members of the team, this study was not completed.

However, enough work had been completed to reveal that a method of treatment for mononucleosis was found which is superior in results to any treatment used previously.

In this original study, numbers "one", "two", "three" and "four" in sequence were assigned to all cases of mononucleosis. A positive heterophile test was the criterion for a diagnosis and necessary before treatment was begun. Each patient was given a physical examination noting especially the condition of the throat and extent of the lymphadenitis as well as his complaints. Complete blood counts, urinalysis, cephalin flocculation and thymol turbidity tests were done on all patients. Each patient then received 1,200,000 units of long acting Penicillin (Bicillin)† by intramuscular injection. At this point the treatment varied according to the number assigned to the patient. All number one's received 1 cc. of ACTH* every 12 hours for three days. All number two's received 1 cc. Placebo*

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†Physician, Student Health Service, The University of Arizona, 1959-60, Tucson.

†Bicillin — provided gratuitously by the Wyeth Company.

*Cortisone, ACTH and Placebos—provided gratuitously by The Upjohn Company.

every 12 hours for three days. All number three's were given 12 Cortisone* tablets, 25 mg., with instructions to take one tablet four times a day. All number four's were given 12 Placebo tablets with instructions to take one tablet four times a day. Each Placebo could not be distinguished from its drug counterpart by inspection other than by Dr. Drenckhahn, supervisor of the project. The patients were treated on an ambulatory basis when possible, and each physician followed his own cases, usually seeing them every one to three days depending upon the treatment and severity of the case. All hospitalized cases were treated and followed up by Dr. Drenckhahn who used the same rotating type of treatments.

Every two weeks each patient was re-evaluated as to complaints, condition of throat, palpable glands, liver and spleen, with the results recorded on his chart. Complete blood count, urinalysis and liver function tests were repeated at this time. This routine of re-evaluation and re-testing was continued until the patient was either asymptomatic, the liver function tests were normal, or he failed to return, whichever occurred first.

The patients taking the steroids were noted to improve quicker and return to school sooner than the others. Subjective symptoms such as loss of fever, return of appetite and strength and reduction in size and tenderness of swollen glands were hastened in the steroid-treated cases. Actual improvement was borne out by a more rapid return to normal of the liver function tests in the steroid-treated cases. However, there was no difference between the steroid-treated cases and the others in the time required for the heterophile to return to normal.

With these results in mind, all mononucleosis cases at The University of Arizona were treated by the following regime. All cases diagnosed mononucleosis by a heterophile of 1:56 or greater were started on Penicillin V 400,000 units by mouth three times a day; Cortisone, 100 to 200 mg. a day, in divided doses by mouth, until the patient improved. Then the Cortisone was reduced to the minimum daily dose that would maintain this improvement. (This was usually 50-75 mg. daily after five to seven days of the original dosage.) All patients were seen every second or third day and the dosage of Cortisone adjusted according to the symptoms. All patients

were carefully checked for spleen and liver enlargement and weight gain. The only other treatment was an increased hour of rest, high protein diet and the elimination of strenuous exercise.

All cases were treated on an ambulatory basis as far as practical, but a few days of hospitalization for high fever and diagnosis were sometimes necessary. Most students attended classes regularly, and only one student receiving this treatment for mononucleosis has dropped out of school in the more than sixty consecutive cases treated. This case is reported below.

For patients sensitive to Penicillin, Achromycin was used instead. No patient gained weight, no rashes were noted, and only two to four patients had palpable liver and/or spleen enlargement. There were no complications noted in any of the cases. There were no treatment failures unless the case presented could be so construed.

CASE REPORT

Mr. J. P. N., a 21-year-old white male, 5 feet 10 inches tall and weighing 210 pounds, was admitted to The University of Arizona Infirmary 4:30 P.M. on September 23, 1959 with the following complaints: fever, chills, sore throat, burning eyes, general malaise and dizziness of two to five days duration, and progressively getting worse. Temperature 102.4, pulse 120, blood pressure 120/80. The abnormal physical findings consisted of a bright red pharynx, much like that of early scarlet fever, and discrete shotty lymphadenitis of both the anterior and posterior cervical chains. No lymphadenitis was noted in axilla or groins. All other physical findings were normal. Blood count on day of admission was Hbg. 16.0 gms.; W.B.C. 7,400, Differential: Neut. 75%; Lymph. 22; Mono. 2; Esino. 1. All blood cells and platelets appeared normal. Urine: Sp. Gr. 1.024; Albumin negative; Sugar negative; Microscopic 0-2 W.B.C. and slight amount mucous per High Power field. Due to the lack of physical findings, the patient was treated for upper respiratory infection and placed on APC's, hot gargles and Wybiotic throat lozenges. Around midnight his temperature rose to 103, and shortly thereafter he had a shaking chill. The next morning his temperature dropped to 99.6, and it was thought he was improving. But around 11:30 A.M., his fever rose

to 104 followed shortly thereafter by another shaking chill. At this time he was started on Combiotic, 2 cc. daily. The temperature remained between 99.6 and 102 for the next 48 hours. During this time the patient complained of headache, nausea, vomiting, dizziness, loss of appetite and had daily sweats and chills.

On September 26th his temperature arose above 103 twice within 12 hours. Combiotic was stopped and Cyclomycin started. Blood was drawn for a blood culture, and Histoplasma and coccidioidomycosis tests were placed on the forearms. A blood count on September 26 showed a Hbg. 16.0 gms; W.B.C. 5,600 with the following differential: Neut. 58; Lymph. 40; Mono. 1; Base. 1. Again all cells appeared normal. The blood count was repeated the next day, September 27th, around noon, and showed the following: W.B.C. 10,600; Neut. 28, Lymph. 69 with 80 per cent of the lymphocytes atypical, and Esino. 3. A heterophile was done at this time and was positive through a dilution of 1:3584. The diagnosis was changed from U.R.I. to mononucleosis and the patient started on Cortisone, 50 mg. T.I.D. He received the first dose 50 mg. Cortisone around 6:30 P.M., and at midnight his temperature dropped to normal for the first time.

Coccidioidomycosis and histoplasmosis skin tests were negative at 48 hours. Antibiotics were continued, Cyclomycin changed to Penn Vee liquid, 250 mg. per 5 cc., because of nausea, vomiting and gastric distress. Anorexia became prominent and caused difficulty in sufficient food and fluids intake coupled with the resulting nausea. Severe throbbing headaches accompanied the fever rises, but no nuchal rigidity was noted. On September 27th the patient's serum was noted to be icteric.

The spleen and liver were both palpable on September 30. At this time his appetite started to improve, and the nausea and vomiting disappeared. Temperature varied from normal to spikes of 102. daily, with headaches, profuse diaphoresis, and shaking chills following each spike. Discouragement on the part of the patient over his seemingly lack of progress to get well prompted the staff to suggest a consultation by an outside physician. This was readily agreed to, and a consultation with a prominent internist

was held on October 4. After reviewing the case by checking all records and examining the patient, it was his opinion that the patient was improving and that no change in treatment was indicated.

On October 5th the blood count was Hbg. 14.5 gms; W.B.C. 24,200; Neut. 18 with 6 per cent bands; Lymph. 82 with 31 per cent atypical with a heterophile of 1:1792. The patient responded under therapy and gradually improved and gained strength. On discharge his blood showed the following: Hbg. 14.5 gms., W.B.C. 6,800; Neut. 19, Lymph. 75 with 18 per cent atypical; Mono. 1; Esino. 3; Base. 2 and a heterophile of 1:1796.

This student was advised to drop out of school because of the severity of his attack and because of the time lost from school, 21 days. He dropped from school and returned home under the close supervision of his family physician, who was forwarded a summary of his case.

ADDENDUM

During the last year and a half we have treated a total of 88 cases of mononucleosis, 43 of which required hospitalization. From the time of diagnosis and the start of steroid therapy to the date of discharge, these 43 cases received a total of 95 days of bed care. This is an average of 2.2 days of bed care per patient required from the start of the steroid therapy to the discharge to class.

The change from a weak, tired, feverish patient into one who has a normal temperature and the feeling of well being all within three days is almost miraculous. The treatment of mononucleosis by steroids does exactly this in the majority of cases.

The question of reactivation of tuberculosis or peptic ulcer has been brought up. All of our students have had chest X-rays, complete physical examinations and full past histories recorded and on file at our infirmary. These are carefully checked, the student re-examined and a careful history again taken before treatment is started. To date we have encountered no untoward symptoms as the result of our steroid therapy. Perhaps this is due to the low dosage used and to the short duration of steroid therapy.



*attains
sustains
retains*

*extra
antibiotic
activity*

DECL

attains activity levels promptly

DECLOMYCIN Demethylchlortetracycline attains—usually within two hours—blood levels more than adequate to suppress susceptible pathogens—on daily dosages substantially lower than those required to elicit antibiotic activity of comparable intensity with other tetracyclines. The average, effective, adult daily dose of other tetracyclines is 1 Gm. With DECLOMYCIN, it is only 600 mg.

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DECLOMYCIN Demethylchlortetracycline sustains through the entire therapeutic course, the high activity levels needed to control the primary infection and to check secondary infection at the original—or another—site. This combined action is usually sustained without the pronounced hour-to-hour, dose-to-dose, peak-and-valley fluctuations which characterize other tetracyclines.

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OTHER TETRACYCLINES—PEAKS AND VALLEYS

POSITIVE ANTIBACTERIAL ACTION

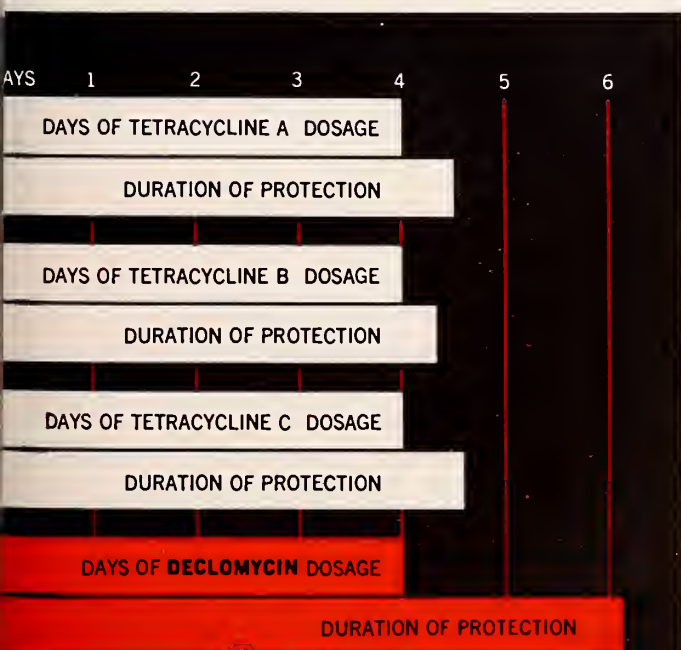
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CAPSULES, 150 mg., bottles of 16 and 100. **Dosage:** Average infections—1 capsule four times daily. Severe infections—Initial dose of 2 capsules, then 1 capsule every six hours.

PEDIATRIC DROPS, 60 mg./cc. in 10 cc. bottle with calibrated, plastic dropper. **Dosage:** 1 to 2 drops (3 to 6 mg.) per pound body weight per day—divided into 4 doses.

SYRUP, 75 mg./5 cc. teaspoonful (cherry-flavored), bottles of 2 and 16 fl. oz. **Dosage:** 3 to 6 mg. per pound body weight per day—divided into 4 doses.

PRECAUTIONS—As with other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs, discontinue medication.

Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under constant observation.



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PROTECTION AGAINST RECURRENCE

Tumors of the Central Nervous System

Abstracts from the Seventh Annual Arizona Cancer Seminar

Philip J. Hodes, M.D.

Philadelphia, Pennsylvania

The following items were abstracted from the presentation given by Dr. Philip J. Hodes of the Jefferson Medical College Hospital entitled "Tumors of the Central Nervous System." (A.J.B.)

ACCORDING to Kernohan, metastatic brain tumors arise most commonly from the lung. In his experience at the Armed Forces Institute of Pathology, one-third arise from bronchogenic carcinomas, about one-fourth from the intestinal tract, while about one-fifth of all metastatic brain tumors come from the breast, and an equal number from renal cancers.

"The most common osteolytic abnormality in the skull is metastatic disease. Second in frequency are the meningiomas. Least common are the primary bone sarcomas of the skull."

* * * *

"Hypernephromas, as a rule, are, from a microscopic point of view, not very malignant, but because of the tendency of the primary tumors to invade the renal veins, metastases often are widespread. Mitotic figures are not often seen in renal carcinomas, and the prognosis of these tumors is based on the presence, as well as the degree, of invasion of the renal veins.

Air studies are still very commonly employed, with ventriculography the procedure of choice in patients with increased intracranial pressure and encephalography in individuals who demonstrate no cerebral spinal fluid pressure elevation. Whereas, once the cerebral cisterns were routinely sucked dry and replaced by large quantities of air, there is an increasing tendency toward the use of much smaller amounts of air carefully guided and selectively examined. In our own experience cerebral angiography is being used with increasing frequency, often employed instead of pneumoencephalography. It is easier on the patient, it is an easier procedure to do, and the information is often much more than is obtainable from pneumoencephalography.

* * * *

Dr. Simon Kramer, Head of the Radiation Therapy Division of the Jefferson Medical College Hospital, has been interested in the treatment of brain tumors for many years. In 1953

the Medical Research Council of Great Britain set out to find whether surgery alone or surgery plus radiation therapy were equally effective in the treatment of brain tumors. Dr. Kramer was the radiation therapist in charge of this project. The following are Dr. Kramer's convictions in this regard.

Because brain tumors are relatively radio-resistant, one must constantly bear in mind the threat of normal necrosis during radiation therapy. Whereas embryonic brain tissue is more sensitive than adult brain tissue, the lethal dose for both is very close. Noteworthy, too, is the fact that the white matter of the brain is more radio-sensitive than is the gray matter. Worth remembering also is the greater radio-sensitivity of the brain stem as compared to the cerebrum itself.

In setting up the experiment in Great Britain

in 1953, Dr. Kramer was very careful to select patients of the same age for comparison, patients with lesions approximately the same size, and the same histological groups. In all, more than 700 patients were considered for radiation therapy, and of these, in 555, the records are complete enough for interpretation.

According to Kramer there was a statistically significant improvement of 5 per cent in end results when patients were given radiation therapy in addition to the surgical procedure. Small though this figure may be, the statisticians of the British Research Council considered it meaningful.

Dr. Kramer gave these patients from 5000 to 7000 r in a period of six to seven weeks. In all, he used super-voltage therapy; in some rotation therapy was used, and in others stationary therapy depending upon the size of the tumor.

"CA" NOW AVAILABLE TO ALL DOCTORS

The American Cancer Society's publication, "CA," formerly on limited distribution in Arizona, is now being made available free of charge, through the Arizona Division to all of Arizona's doctors who indicate an interest in it.

Currently the Division office is preparing a mailing to all doctors in the state, and included are a list of all professional films and literature available and a sample issue of "CA."

Simply notify the Division office, 543 East McDowell Road, Phoenix, of your interest in "CA" for inclusion on mailing list.

Hypnosis in Medicine and Surgery*

by

Lillian Rachlin, M.D., F.A.C.S.†

Sepulveda, California

Hypnosis is a useful tool as an adjunct to orthodox medical therapy. It is felt that its continued exploration and use will result in improvement of the entire therapeutic regimen.

HISTORICAL BACKGROUND

HYPNOSIS has always played a part in human life. In early civilization, suggestion was used therapeutically by medicine men and witch doctors in connection with religious practices. Egyptian writings(4) of 3000 years ago describe hypnotic procedures much as they are performed today. In the Middle Ages, the "laying on of hands" resulted in cures when sufficient faith was developed. In 1770, Father Gossner(24) in Europe demonstrated his ability to heal people, combining religion with suggestion. In 1773, Mesmer,(11) after seeing Father Gossner's demonstration, introduced the theory of "invisible animal magnetism" to explain cures, thereby separating suggestion therapy from its religious connection. Although his explanations were not correct, Franz Anton Mesmer begins the modern history of hypnotism.

In 1821, Recamier(24) in France reported painless surgery on a patient in the "magnetized" sleep state. In 1829, Jules Cloquet(24) reported

to the French Academy of Medicine on his use of such anesthesia to perform a mastectomy. In 1837, Oudet(24) in France was the first dentist to extract a tooth painlessly using suggested anesthesia.

In 1843, a Scottish physician, James Braid,(3) practicing in Manchester, England, found that he could induce a trance-like state by suggestion and the gaze-fixation technique. He coined the word "hypnosis" from the Greek *hypnos*, meaning sleep.

In the United States, about the same time, Dr. Albert Wheeler(2) performed a nasal polypectomy under hypnosis, Doane(2) removed a tumor from the neck, and Dugas(2) did a breast amputation; however, hypnoanesthesia and its use in surgery was brought to the fore by James Esdaile,(10) an English physician. During the years from 1845 to 1851, he performed approximately 300 major operations utilizing this technique.

Workers such as Liebault,(2) Charcot(2) and Bernheim(1) used the hypnotic phenomenon as a psychological tool and clarified the basic re-

*Presented at the Arizona Veterans Administration Inter-Hospital Meeting, Veterans Administration Hospital, Tucson, April 23, 1960
†Assistant Chief, Surgical Service, Veterans Administration Center, Sepulveda, California.

actions of the hypnotic trance so that it could be used as an adjunct to the healing arts.

The development of modern chemical anesthesia and the use of hypnotism by the stage performer and the charlatan have been the chief forces deterring the medical uses and the medical acceptance of hypnotism as another tool in the physician's armamentarium. The two World Wars produced a tremendous impetus to hypnotherapy. Its particular use in surgical therapy was in the field of hypnoanesthesia.

DEFINITION

Hypnosis has been defined(24) as a state of heightened suggestibility following an established rapport in which, through mechanisms not as yet fully understood, the patient is assumed to put himself into a condition resembling sleep. In this condition he readily accepts all suggestions given by the operator except those not in agreement with his conscience.

Suggestibility is the capacity of the individual to be affected by certain influences. Such influences, ideas, requests, or examples, when presented directly or indirectly, produce uncritical acceptance and initiate appropriate response in the patient who is susceptible to suggestion.

Many theories have been brought forth, but no theory completely explains hypnosis. Hypnosis has been explained(14) as (1) a form of sleep, (2) a conditioned reflex, (3) a regression to infancy, (4) behavior as the subject believes a hypnotized individual should behave, or (5) as a dissociation of the conscious and the subconscious.

BASIC CONCEPTS

For the most part, the use of hypnosis in medical practice will be limited to the treatment of disorders in which symptoms play minor defensive roles. In treating patients under hypnosis, we attempt to use the same type of procedures we would use in the waking state of psychotherapy; namely, reassurance, re-education, persuasion, direct symptom removal, treatment through psychobiologic techniques, and lastly, reconstructive therapy, or therapy directed at reconstructing the entire personality. For the most part, in general medicine, we confine ourselves to symptom removal, symptom amelioration, symptom displacement, re-education, persuasion and reassurance.

One criticism which many have to the hypnotic removal of symptoms is that it attempts to remove the symptoms without getting at the basic underlying cause of the illness and that therefore, it removes the symptoms but leaves the neurotic personality intact. However, in actuality, it seems that the very persons who decry such symptom removal are the same who would prescribe ergotamine for migraine, barbiturates for tension headaches, corticosteroids for asthma, etc., without getting at the underlying psychological conflict. What difference is it then, if tension headaches can be removed by teaching a process of relaxation rather than by giving repeated doses of a barbiturate? Is it not more constructive to teach the patient to relieve his tension through his own efforts rather than using a medication, that is an external "crutch"?

The state of hypnosis is divided(15) into four levels beyond the group labeled as uninfluenced. These are: hypnoidal, light trance, medium trance and deep or somnambulistic trance. Approximately 5 to 10 per cent of individuals are not susceptible to hypnosis. Ten per cent of persons may be taken into a hypnoidal state, another 25 per cent into the light trance, 35 per cent the medium trance, and 20 to 25 per cent into the deep trance.

For the general surgeon and medical man, the use of hypnosis will be confined largely to the hypnoidal, light or medium trance states. Occasionally it will be necessary to carry the patient into a deeper plane. This will be determined by the individual patient. These various trance states are not completely enclosed compartments and may mingle somewhat at their borders in their manifestations.

One of the most important points in the use of hypnosis is that it should be looked upon as an aid, but not a cure-all. It is not a substitute for general anesthetics, analgesics or narcotics.

CLINICAL APPLICATIONS

The list of conditions in which hypnosis may be used is legion. It may be used both in the treatment of functional and organic disease. Bernheim(1) and Bramwell(4) have used it successfully in almost every syndrome reported.

Probably nowhere has hypnosis been more extensively used than in the treatment of the psychoneuroses and their attendant somatic symp-

tomatology. Its use in these syndromes is either in the form of authoritative direct symptom removal or in combination with other simple psycho-therapeutic techniques.

Numerous reports have appeared in the literature in which atypical epileptic seizures have been relieved or considerably ameliorated by hypnosis or psychotherapy. Rosen(21) has reported a case of a woman with severe epileptic seizures of Jacksonian type, who had two cranial explorations because of her symptomatology. Her entire picture was based on psychogenic causes and was relieved by hypnotic therapy.

Bonello(2) reports the use of hypnosis in the treatment of eight cases of lower back pain, mild fasciitis, bursitis, all of which failed to respond to ordinary conservative methods of therapy for periods of up to eight weeks. No case was treated with hypnosis which had not had at least 10 to 14 days of ordinary conservative therapy. In most cases the symptoms were becoming progressively worse rather than better at the time that hypnosis was first attempted. After hypnotic therapy was begun, improvement was noted within 24 to 48 hours in almost every case and this improvement was progressive.

Hypnosis has been used in the pre-operative preparation of the patient for surgery, both to relieve the anxiety caused by the anticipation of surgery and to relieve part of the postoperative discomfort. In a study done at the University of Minnesota,(8, 17) it was found that pre-operative hypnosis and suggestions of comfort after surgery resulted in 55 per cent lessening of the amount of narcosis required.

In adult patients undergoing tonsillectomy(2) under local anesthesia, it has been found that by hypnotic augmentation of anesthesia, bleeding has been controlled in almost every case and postoperative discomfort has been minimal to non-existent.

Hypnosis has been used in burn cases.(5) It allays apprehension and has been used during painful repeated dressings, thus avoiding multiple general anesthetics.

It has also been used with good results in the postgastrectomy syndrome and in the treatment of various forms of pain such as phantom limb, pain with metastatic cancer and bizarre abdominal pain.

As stated earlier, hypnosis has been used as an anesthetic agent for a long time. Hypnoanesthesia is not true anesthesia (loss of sensory perception), but is analgesia (loss of pain perception). Hypnosis should not take the place of the techniques and agents of modern anesthesiology; however, there are certain types of cases for which hypnosis serves the best purpose. One indication is the patient who is known to be sensitive to local anesthetic agents and who requires surgery. There are conditions in which local infiltration is contraindicated, such as inflammation or infection, and in those cases in which general anesthesia is also undesirable, then hypnoanesthesia may be carried out easily.

It is important to re-emphasize the fact that hypnoanesthesia is not limited to what would technically be classified as minor surgery. All sorts of major operative procedures have been reported.

Case History on H.J.

This 39-year-old white male was admitted to Whipple Veterans Administration Center on August 12, 1959. The patient stated he had noticed increasing fatigue for the past six months. He had also noticed that his abdomen was increasing in size, that he was experiencing progressively severe pain in the left upper quadrant and flank, and that, in spite of a fairly good appetite, he had lost about 14 pounds in weight. H.J. was very apprehensive about the possibility of carcinoma being present because his mother and father had both died of malignancy.

Studies were completed and the patient was taken to the operating room on September 18, 1959 with the preoperative diagnosis of a tumor of either the left upper pole of the kidney or adrenal gland. At laparotomy, there was found a very large, vascular, soft tumor that was adherent to the upper pole of the kidney in the region of the adrenal gland. It was technically inoperable because of the large size and marked vascularity. A biopsy was taken which revealed an anaplastic carcinoma, probably adrenal cortical in origin.

Postoperatively, M. J. continued to complain almost constantly of pain and was very apprehensive and demanding. His diagnosis had been discussed with him. It was decided that this patient would probably be a suitable candidate

for hypnosis. He was agreeable to having a session of "relaxation"; therefore, this was done. The patient was found to be very suggestible and was rapidly taken into a medium trance state. Posthypnotic suggestions were left to allay apprehension and to relieve pain. After the first session, there was noted to be a marked improvement in the mental attitude of the patient, as well as a decrease in complaints. He stated that during the session he had felt more relaxed than he had in many months. Thereafter, at varying intervals, the patient was hypnotized and specific complaints that might arise were treated with posthypnotic suggestion. Up to the present time, H. J. has had several readmissions to the hospital because of a chronic draining sinus from his incision and has received an occasional hypnotic session. He has gained weight, his mental attitude is fairly good and he has required nothing stronger than Darvon or A.P.C. tablets for pain secondary to the draining sinus.

Case Report on D. H.

This young white male was admitted to Whipple Veterans Administration Center on August 18, 1959, as a transfer from Ann Arbor, Michigan, Veterans Administration Hospital. His admission diagnoses were: 1) Bronchial asthma; 2) Agammaglobulinemia; 3) Chronic bronchitis; 4) Recurrent acute bronchitis with Staphylococcus aureus; 5) Pneumonitis. He was transferred to this facility with the thought that the dry climate might be beneficial.

During his hospitalization at Whipple, it was noted that D. H. was very apprehensive and demanding of continuous medication for his asthma. At the end of September, he developed symptoms that were compatible with the diagnosis of an acute exacerbation of chronic cholecystitis with lithiasis. This was confirmed by cholecystogram. On October 8, 1959, a cholecystectomy was done. The patient tolerated the surgical procedure very well. Because of his marked apprehension, one hypnotic session was held preoperatively and one the day after surgery in an effort to reassure the patient and insure a smoother postoperative course. Very good results were obtained as noted by a decrease in pulmonary symptoms, less coughing and wheezing, and a quieter, more relaxed patient. There was appreciable decrease in his requests for medication.

Several psycho-therapeutic sessions were held with D. H. at periodic intervals, some with and some without hypnosis. He became more cooperative and developed insight as to the cause of his pulmonary symptoms. He realized that psychotherapy under the supervision of a psychiatrist, as well as continuation of the self-relaxation techniques that he had been taught, would be beneficial.

The patient requested transfer back to Michigan because it was close to his home and family. He now felt that with competent psychiatric help his condition could improve. D. H. was, therefore, transferred back to Ann Arbor, Michigan, Veterans Administration Hospital on January 18, 1960.

In a letter received from the patient about a month after his return to Michigan, he stated that he was feeling very much better, although he did have to take occasional medication for his asthma. He stated that he was able to stay at home with his family and see a doctor only for his injections of gamma globulin.

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Clinical Pictures of Fluid Imbalances*

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Just as knowledge of the clinical characteristics of individual diseases is required for diagnosis and treatment of a patient with a combination of pathologic states, so is knowledge of the specific fluid imbalances necessary for diagnosis and treatment of the patient with combined disturbances of the body fluids. Such knowledge, plus the facts gained by clinical history, physical examination and laboratory tests, greatly facilitates diagnosis of combined imbalances and makes possible effective therapy. For the only solid basis for effective therapy is accurate systematic diagnosis.

CLINICAL PICTURES OF FLUID IMBALANCES

SINCE that period in history not too long ago when medicine emerged from the wilderness of witchcraft, magic and superstition, the approach to the diagnosis and treatment of disease has been chiefly clinical. When we as medical students were introduced to such pathologic states as rheumatic fever, appendicitis, lobar pneumonia and the contagious diseases, we were introduced to them as clinical pictures, and we learned them as clinical pictures. Each picture represented a sort of composite which included the clinical history, the symptoms, the physical findings and the laboratory data.

The clinical approach loses none of its value when one undertakes the study of fluid imbalances. Yet the usual method of studying these disturbances is about as clinical as a biochemist's nightmare. Using this traditional method one attempts to learn the biochemical devia-

tions from the normal of water and electrolytes that can occur with diabetes, diarrhea, burns, ulcerative colitis, and so on through the whole gamut of pathology. Fluid imbalances are treated as "biochemical appendages" of diseases. This method is all very well for biochemists and investigators; for clinicians a clinically oriented system has clear advantages. We use one. We call it the "clinical picture approach." We examine fluid imbalances primarily, learning the underlying mechanisms responsible for them. We learn basic fluid imbalances as clinical pictures. By virtue of our knowledge of the physiology of disease we can determine which fluid imbalances will be likely to occur in which diseases and under what circumstances.

Body fluid imbalances represent disease states that are usually caused by disparities between intake and output of water and electrolytes. In health there is a balance between gains and losses of these substances. In disease one may have an abnormal decrease or increase in either intake or output of either water or electrolytes.

Now, in addition to abnormalities in the in-

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take and output of water and electrolytes, some disease states are characterized by fixation of water and electrolytes within the body. These substances may be lost, from the physiologic standpoint, in the accumulation of liquid in a distended intestine, or in ascites. Deficits can also result from increased use of water and electrolytes, such as occurs in infectious disease with high fever. Some imbalances occur because of malfunctioning of the body homeostatic mechanisms. Fortunately, the group of imbalances resulting from disturbances of the body homeostatic mechanisms is a minority group.

Since there are so many factors which may lie at the root of body fluid imbalances, it might appear that systematic classification is doomed to failure. Fortunately this is not the case, for all body fluid imbalances can logically be divided into 17 imbalances, each with its own clinical picture. Some imbalances may exist alone; others, in combination. Sometimes a succession of imbalances follow, one after another. In short, body fluid imbalances can properly be regarded as clinical entities. Like other clinical entities, they modify and are modified by coexisting pathologic states. And we must understand single imbalances if we are to understand combined imbalances.

Now, for doctors who have few or no laboratory facilities available, the clinical approach is a godsend. He doesn't have emergency 24-hour laboratory service available. He must assess a patient, make a diagnosis and proceed with therapy while awaiting a laboratory report.

Of these 17 basic imbalances which I mentioned, 12 stem from changes in properties of extracellular fluid. These include:

- Changes in volume
- Changes in sodium content
- Changes in potassium content
- Changes in calcium content
- Changes in base bicarbonate content
- Changes in carbonic acid content

The following imbalances in properties can occur:

OUTLINE WATER AND ELECTROLYTES

Gains:

- Ingested water
- Ingested food
- Tube feedings
- Oxidation of foodstuffs (water only)
- Oxidation of body tissues (water only)
- Parenteral feedings
- Rectal feedings

Losses:

- Vomiting
- Lungs — water vapor and carbon dioxide
- Burn exudate
- Gastric suction
- Perspiration
- Insensible loss of water
- Internal pooling and fixation
- Paracentesis
- Colitis
- Intestinal suction
- Draining intestinal fistula
- Stools
- Urine
- Ulcer exudate
- Wound exudate
- Loss into injured areas

PRINCIPLE BODY HOMEOSTATIC MECHANISMS

- Pituitary Mechanism, anterior, posterior
- Adrenal Mechanism
- Parathyroid Mechanism
- Renocardiovascular Mechanism

EXTRACELLULAR FLUID VOLUME DEFICIT

History:

- Abruptly decreased intake of water & electrolytes
- Vomiting
- Diarrhea

Laboratory Findings:

- Hemoglobin elevated

Clinical Findings:

- Dry skin and mucous membranes
- Oliguria
- Weight loss

- Volume Imbalances
 - Extracellular fluid volume deficit
 - Extracellular fluid volume excess
- Concentrational Imbalances
 - Electrolyte concentration deficit
 - Electrolyte concentration excess
- Compositional Imbalances
 - Potassium deficit
 - Potassium excess
 - Calcium deficit
 - Calcium excess
 - Primary base bicarbonate deficit (metabolic acidosis)
 - Primary base bicarbonate excess (metabolic alkalosis)
 - Primary carbonic acid deficit (respiratory alkalosis)
 - Primary carbonic acid excess (respiratory acidosis)

There is a second type of imbalance characterized by changes in position of extracellular fluid. Normally one-fourth of the extracellular fluid exists in plasma, and three-fourths as interstitial fluid. Under varying clinical conditions, two types of shifts may develop. First of all, a plasma-to-interstitial fluid shift can occur. Second, water and electrolytes can shift from interstitial fluid to plasma.

Finally, we have three imbalances making up the total of 17. These are deficits. They include protein deficit, calorie deficit and vitamin deficit. Now, let's have some thumbnail sketches of the clinical pictures of the 17 basic fluid imbalances. The sketches are well named, for they are indeed sketchy, but they do provide informational hooks on which to hang the considerable body of information required for practical mastery of the subject.

The first of the imbalances characterized by changes in properties of extracellular fluid is extracellular fluid volume deficit. This deficit results from decreased intake of water and electrolytes, as in infectious disease, or from acute loss of water and electrolytes, as in vomiting. Key clinical findings include lassitude, dry skin and mucous membranes, and oliguria. There is weight loss. A laboratory finding is elevated hemoglobin, since the volume of the plasma is decreased.

EXTRACELLULAR FLUID VOLUME EXCESS

History:

Excessive infusion of isotonic saline
Chronic kidney disease

Laboratory Findings:

Hemoglobin depressed

Clinical Findings:

Puffy eyelids
Moist rales in the lungs
Pitting edema
Rapid weight gain

SODIUM DEFICIT

History:

Excessive sweating plus drinking water
Excessive infusion of carbohydrate and water
Gastrointestinal suction plus drinking water

Laboratory Findings:

Plasma sodium level depressed
Specific gravity urine depressed

Clinical Findings:

Apprehension
Abdominal Cramps
Diarrhea

SODIUM EXCESS

History:

Excessive infusion of isotonic saline
Tracheobronchitis
Copious, watery diarrhea

Laboratory Findings:

Plasma sodium elevated
Specific gravity urine elevated

Clinical Findings:

Excitement
Dry, sticky mucous membranes
Oliguria

POTASSIUM DEFICIT

History:

Diarrhea
Ulcerative colitis
Recovery from diabetic acidosis

Laboratory Findings:

Plasma potassium depressed

Clinical Findings:

Anorexia
Silent intestinal ileus
Soft muscles

The next imbalance is volume excess, caused by excessive retention of water and electrolytes, when so-called "Normal Saline" is given in excessive quantities or when excessive retention of water and electrolytes occurs in congestive heart failure. Key clinical findings include puffy eyelids, moist rales in the lungs and pitting edema. There is rapid weight gain. A laboratory finding is decreased hemoglobin, since the plasma volume is increased.

The next clinical picture, electrolyte concentration deficit, is caused by loss of water and electrolytes replaced by water only. Excessive sweating followed by drinking of water may bring it on. So may drinking water while gastrointestinal suction tubes are removing water and electrolytes. The imbalance may result from excessive loss of electrolytes from the body as in adrenal insufficiency. Key clinical findings include apprehension, abdominal cramps and diarrhea. The plasma sodium level is characteristically below 137 mEq./L. and the specific gravity of the urine below 1.010.

Electrolyte concentration excess results when water intake is decreased or when there is excessive loss of water through rapid and deep breathing as in tracheobronchitis. It may also result when water in excess of electrolytes is lost in copious, watery diarrhea or in the urine of untreated diabetes insipidus. Key clinical findings include excitement progressing to mania; dry, sticking mucous membranes; and oliguria. The plasma sodium may rise above 147 mEq./L. and the specific gravity of the urine above 1.030.

Potassium deficit results when there is excessive loss of potassium-rich secretions as in severe vomiting, ulcerative colitis or infantile diarrhea. It may occur when there is increased utilization of potassium as in the healing phase of burns and in recovery from diabetic acidosis. The key clinical findings include anorexia, muscles soft (like half-filled water bottles) and silent intestinal ileus. The plasma potassium is usually below 4 mEq./L.

Potassium excess results from retention of potassium in the body and may occur in severe kidney disease, excessive release of potassium due to burns or crushing injuries, or with excessive parenteral administration of potassium.

POTASSIUM EXCESS

History:

- Burns
- Crushing injury
- Kidney disease
- Excessive infusion of potassium solutions

Laboratory Findings:

- Plasma potassium elevated

Clinical Findings:

- Oliguria
- Intestinal colic
- Diarrhea

CALCIUM DEFICIT

History:

- Sprue
- Acute pancreatitis
- Hypoactive parathyroid glands
- Excessive infusion of citrated blood

Laboratory Findings:

- Plasma calcium depressed

Clinical Findings:

- Tingling of fingers
- Tetany

CALCIUM EXCESS

History:

- Tumor of parathyroid glands
- Excessive vitamin D for therapy
- Multiple myeloma

Laboratory Findings:

- Plasma calcium elevated

Clinical Findings:

- Relaxed muscles
- Flank pain
- Deep thigh pain

PRIMARY BASE BICARBONATE DEFICIT

History:

- Excessive infusion of isotonic saline
- Diabetes mellitus

Laboratory Findings:

- Acid urine
- Plasma bicarbonate depressed

Clinical Findings:

- Disorientation
- Shortness of breath on exertion
- Deep rapid breathing

It may be caused by excessive retention of potassium due to adrenal insufficiency. Key clinical findings are oliguria progressing to anuria, intestinal colic and diarrhea. The plasma potassium is usually above 5.6 mEq./L.

Calcium deficit is caused by excessive loss of calcium from the body as in the steatorrhea of sprue. It also occurs when calcium from the body fluids is immobilized in acute pancreatitis, massive subcutaneous infections or generalized peritonitis. It may occur when the parathyroid glands become hypoactive as with excessive surgical removal. It may result from the inactivation of calcium by excessive administration of citrated blood. The key clinical findings include tetany, tingling of the fingers and muscle cramps. The plasma calcium is characteristically below 4.5 mEq./L. and the Sulkowitch test on urine fails to show precipitation.

Calcium excess results from excessive mobilization of calcium because of overactivity of the parathyroid glands, tumor of the parathyroid glands, or with excessive administration of vitamin D. The key clinical findings include relaxed muscles, flank pain from kidney stones and deep bony pain; for example, in the thighs. The plasma calcium is characteristically above 5.8 mEq./L. and the urinary output of calcium as evidenced by the Sulkowitch test is greatly increased.

The first metabolic disturbance is base bicarbonate deficit, usually called metabolic acidosis. It is caused by any clinical event which decreases the amount of base bicarbonate. Thus, the acidic ketones of uncontrolled diabetes mellitus displace base bicarbonate, disturbing the ratio and tilting the teeter-totter to the left. When excess chloride is introduced into the body, base bicarbonate is similarly displaced. The key clinical findings include disorientation, shortness of breath on exertion, deep rapid breathing and acid urine. The plasma bicarbonate, which reflects the amount of bicarbonate on the teeter-totter, is depressed below normal.

Base bicarbonate excess, usually called metabolic alkalosis, is caused by any clinical event which weights the base bicarbonate side of the balance. Excessive ingestion of sodium bicar-

PRIMARY BASE BICARBONATE EXCESS

History:

- Vomiting
- Excessive infusions of alkalies
- Gastric suction

Laboratory Findings:

- Alkaline urine
- Plasma bicarbonate elevated

Clinical Findings:

- Hypertonic muscles
- Tetany

PRIMARY CARBONIC ACID DEFICIT

History:

- Deep rapid breathing
- Oxygen lack
- Fever
- Salicylate intoxication

Laboratory Findings:

- Alkaline urine
- Plasma bicarbonate depressed

Clinical Findings:

- Deep rapid breathing
- Tetany

PRIMARY CARBONIC ACID EXCESS

History:

- Pneumonia
- Emphysema
- Morphine poisoning
- Respiratory suppression

Laboratory Findings:

- Acid urine
- Plasma bicarbonate elevated

Clinical Findings:

- Disorientation
- Respiratory embarrassment

PLASMA-TO-INTERSTITIAL FLUID SHIFT

History:

- Burns
- Massive crushing injuries
- Intestinal obstruction

Laboratory Findings:

- Hemoglobin elevated

Clinical Findings:

- Unconsciousness
- Pallor
- Low blood pressure

bonate causes such a weighting. When chloride is lost as in vomiting or gastric suction, the bicarbonate anions must increase in compensation since the total cations must always equal the total anions. Either situation tilts the teeter-totter to the right. Alkalosis is present. Key clinical findings include tetany, muscle hyper-tonicity and alkaline urine. Plasma bicarbonate is usually elevated.

Respiratory disturbances affect the carbonic acid or left side of the teeter-totter. Consider, first, carbonic acid deficit, caused by any condition which results in increased rate and depth of breathing with blowing off of carbon dioxide. Recall that carbonic acid of the extracellular fluid is the source of carbon dioxide blown off in the lungs. Excessive blowing off of carbon dioxide reduces the amount of carbonic acid in the extracellular fluid and causes the teeter-totter to tilt to the right. Alkalosis is present. Clinical conditions causing increased rate and depth of breathing include oxygen lack, fever and high temperature. Key clinical findings include tetany, deep rapid breathing and alkaline urine. The plasma bicarbonate is depressed from the normal.

Carbonic acid excess results when carbon dioxide is retained with a resultant retention and increase of carbonic acid in the extracellular fluid. It is caused by conditions which suppress respiration such as pneumonia, emphysema and morphine poisoning. There is a weighting of the carbonic acid side of the teeter-totter, which tilts to the left. Acidosis is present. Key clinical findings include disorientation, respiratory embarrassment and acid urine. The plasma bicarbonate level is above normal.

Now let us consider changes in position of extracellular fluid. The first involves a shift of water and electrolytes from the plasma into the interstitial fluid, a plasma-to-interstitial fluid shift. The mechanism of this shift is not known, but is probably neurogenic in nature. It includes such clinical occurrences as burns, massive crushing injuries and perforated peptic ulcer. Key clinical findings include pallor, low blood pressure and unconsciousness. The hemoglobin is elevated since water and electrolytes have shifted from the plasma.

An interstitial fluid-to-plasma shift of water and electrolytes can result from excessive intravenous administration of hypertonic solutions such as serum albumin, plasma or dextran. The osmotic effect of such solutions draws water and electrolytes from the interstitial fluid. It can occur in recovery from a plasma-to-interstitial fluid shift. One may have an interstitial fluid-to-plasma shift which is compensatory in nature following the internal or external loss of whole blood. Key clinical findings include pulmonary edema, engorgement of peripheral veins, and bounding pulse. The hemoglobin is decreased in interstitial fluid-to-plasma shift, since there is an excess of water and electrolytes in the plasma.

Finally, let us consider 3 changes in the nutritional status of the body. The first is protein deficit and is caused by any condition involving loss of protein from the body such as severe hemorrhage, burns, draining ulcers, by increased utilization of protein as in severe trauma, or by inadequate intake of food as in starvation. Key clinical findings include fatigue, loss of muscle mass and tone and anorexia. There is also loss of weight. The plasma albumin level may be below 4.0 Gm./100 ml.

Caloric deficit results from decreased intake of calories as in starvation or from increased utilization of calories. Automatically, caloric deficit leads to protein deficit as body tissues are burned for energy purposes. Key clinical findings include mental depression, shortness of breath and loss of muscle tone. Acetonuria may be found.

Vitamin deficits result from decreased intake of vitamins as in starvation or from increased utilization of vitamins as in chronic infectious disease or severe injury. Key clinical findings may include the night blindness of vitamin A deficiency, the beefy-red tongue of B deficiency and the bowed legs of rickets. The x-ray findings on examination of the bones in vitamin C deficiency and vitamin D deficiency are characteristic.

Given familiarity with the clinical pictures of fluid imbalances, the doctor is then in a position to analyze a patient with potential disturbances

of the body fluids in a systematic manner, evaluating him from the standpoint of changes in volume of the extracellular fluid; changes in composition with particular reference to sodium, potassium, calcium, base bicarbonate and carbonic acid; changes in position with reference to shifts of water and electrolytes from the plasma to the interstitial space and vice versa; and finally, from the standpoint of nutritional deficits of protein, calories and vitamins.

Now, suppose the doctor has a patient whose intake of water and electrolytes has been abruptly decreased because of an infection. At the same time he has lost water and electrolytes through vomiting and excessive perspiration. The doctor knows that this patient is a likely candidate for an extracellular fluid volume deficit. Clinical findings plus information concerning acute weight loss and laboratory findings help clinch the diagnosis.

Suppose the doctor has a patient who has lost large amounts of potassium-rich secretions, such as might occur in the stool losses of ulcerative colitis. From the history of the disease the physician knows that the patient is a candidate for potassium deficit, particularly if his food intake has decreased. Clinical findings of this deficit plus informative laboratory findings confirm the suspicions based on the history.

Suppose a patient has suffered massive crushing. He is pale. His blood pressure is low. Perhaps he is unconscious. The physician has the clue to a plasma-to-interstitial fluid shift. It is hardly necessary to corroborate it, but an elevated hemoglobin would.

Perhaps our patient has been at work clearing a mine cave-in on a mountain top. Because of the oxygen deficit at that altitude, he has been breathing deeply. This deep breathing has blown off excessive quantities of carbon dioxide, and he has developed carbon dioxide deficit inducing respiratory alkalosis.

The patient with acute pancreatitis should be suspected of having a calcium deficit since calcium is often bound up in the secretions that surround the inflamed pancreas. The doctor's suspicions will be corroborated if the patient

INTERSTITIAL FLUID-TO-PLASMA SHIFT

History:

Excessive infusion of hypertonic solutions

Recovery phase of plasma-to-interstitial fluid shift

Compensation following loss of whole blood

Laboratory Findings:

Hemoglobin depressed

Clinical Findings:

Bounding pulse

Pulmonary edema

Peripheral veins

PROTEIN DEFICIT

History:

Hemorrhage

Trauma

Wounds or ulcers

Laboratory Findings:

Hemoglobin depressed

Clinical Findings:

Anorexia

Weight loss

Loss of muscle mass and tone

CALORIC DEFICIT

History:

Decreased food intake

Gastrointestinal disease

Chronic infection

Laboratory Findings:

Acetone in urine

Clinical Findings:

Mental depression

Shortness of breath

Loss of muscle mass and tone

VITAMIN DEFICIT

History:

Chronic infection

Severe injury

Laboratory Findings:

Characteristic x-ray findings in specific deficiencies

Clinical Findings:

Night blindness

Beefy-red tongue

Bleeding gums

Starvation

Impaired wound healing

Bowed legs

has tingling of the fingers, muscle cramps and laboratory findings suggesting calcium deficit.

A patient who has lost large quantities of a chloride-rich secretion such as gastric juice will be a candidate for base bicarbonate excess, since loss of chloride from the body causes a compensatory increase in the base bicarbonate. Remember, the total number of anions must always equal the total number of cations. Chloride and bicarbonate are both anions. Lose one; the other builds up. The physician will recall that this patient is a candidate for potassium deficit too, since he is also losing potassium in that vomitus. When the physician corrects the base bicarbonate excess by giving chloride, he will give potassium at the same time.

The physician familiar with the clinical picture concept will immediately think of protein deficit when he sees a patient suffering from hemorrhages, burns, ulcer or severe trauma. Given such key clinical findings as fatigue, loss of muscle tone and poor appetite, his suspicions will be corroborated. If there has been weight loss, and depression of the plasma-albumin level, the diagnosis is clinched.

The patient who has perspired excessively and then drunk plain water is an excellent prospect for sodium deficit. With a positive history and key clinical findings such as apprehension and abdominal cramps, the physician has a sound basis for diagnosis.

And so one can go on and on through the various imbalances. Bear in mind that imbalances are frequently compounded by other imbalances. The baby with acute diarrhea, if not properly treated, can progress from acute extracellular fluid volume deficit to a primary base bicarbonate deficit. After a few days potassium deficit can be added. A little later on, sodium excess may develop because of watery diarrhea. A physician with knowledge of clinical pictures of fluid imbalances will not permit the situation to advance to such a sad state.

The patient with diabetic ketosis frequently presents a number of imbalances including extracellular fluid volume deficit, primary base bicarbonate deficit and potassium deficit.

A patient who is unwisely given an excessive quantity of isotonic solution of sodium chloride may develop extracellular fluid volume excess. If an infectious process has been present, this excessive saline can well tip the scales in favor of base bicarbonate deficit by imposing an excessive chloride load on the kidneys.

A systematic approach to diagnosis is of first importance in properly evaluating the patient with fluid imbalances. First, a careful clinical history should be taken, jotting down facts suggestive of specific imbalances. The past intake and output of fluid should be reviewed with particular emphasis on the previous one or two days.

Such questions as these should be answered: Has the patient been eating and drinking normally? Have therapeutic fluids been given by tube, rectum or parenterally? Have abnormal losses of body fluids occurred in the form of perspiration, vomiting, gastric or intestinal suction, enterostomy, drainage from fistulas, liquid stools, wound or burn exudate?

Sometimes a rough estimate of the intake-output record can be obtained from the history. In carrying out the physical examination, the physician should list findings that may indicate a specific clinical picture. Laboratory findings should be studied. Now, with pertinent data available from the clinical history, physical examination and laboratory values, the physician has a solid basis for a systematic diagnosis which should include both the imbalances present and their approximate severity.

We have now sketched the 17 basic clinical pictures of imbalances of the body fluids. While a patient whose body fluids have been disturbed may suffer from only one imbalance, most will manifest a combination of two or more.

The clinical state of our patient might appear hopelessly confusing unless one uses the clinical approach and evaluates the history, symptoms, physical findings and laboratory findings of the patient. Analyze the state of his body fluids from the standpoint of volume of extracellular fluid, sodium level, potassium level, calcium level, base bicarbonate level, carbonic acid level. Determine whether he has

shifts of extracellular fluid from plasma to interstitial space or vice versa. Discover if he has a deficit of protein, calories or vitamins. This systematic approach is amazingly effective in lifting the fogs of confusion. As Sir William Osler says, "System, or as I shall term it, the virtue of method, is the harness without which only the horses of genius travel." Most of us, including your speaker, are not horses of genius. Most of us will be helped greatly by the use of systematic approach to diagnosis of body fluid imbalances.

The following references are suggested for additional readings:

● Snively, W. D., Jr., and Sweeney, M. J.: FLUID BALANCE HANDBOOK FOR PRAC-

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● Snively, W. D., Jr.: Body Surface Area as a Dosage Criterion in Fluid Therapy: Theory and Application, METABOLISM 6:70-87 (Jan.) 1957.

● Sweeney, M. J.: Tonicity and Its Clinical Application to Parenteral Fluid Therapy, THE J. PEDIAT., Ct. Louis 47:237-248 (Aug.) 1955.

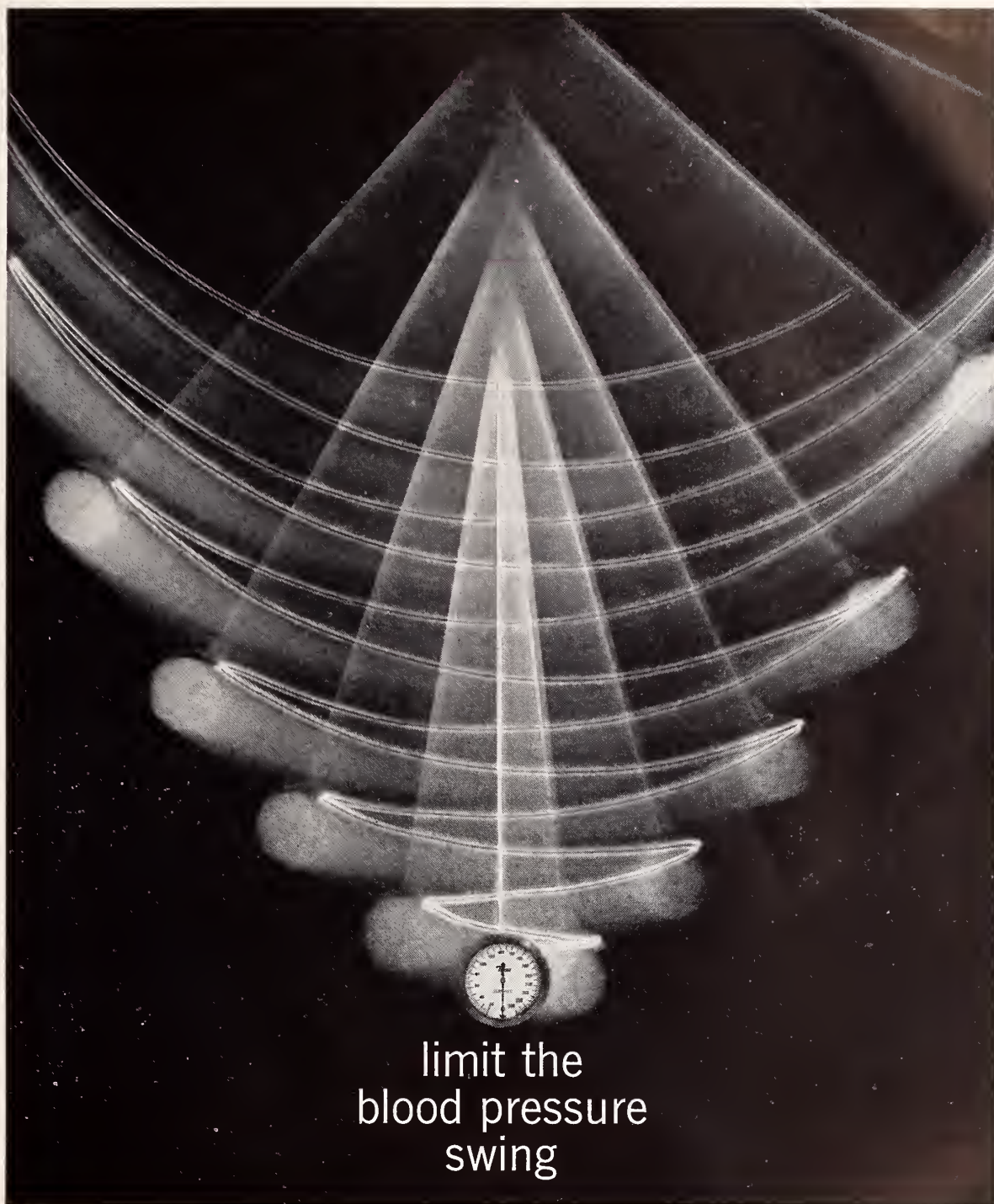
● Sweeney, M. J.: Multiple Electrolyte Solutions, Their Use in Parenteral Fluid Therapy, ILL. MED. J. 113:4-9 (Jan.) 1958.

● Snively, W. D., Jr. and Sweeney, M. J.: Therapy of Imbalance of the Body Fluids, GP 18:74-85 (Aug.) 1958.

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Menu plan for
Mrs. John Dae
 DATE *Feb. 1961*

JOSEPH ROE
 M.D.



1200 CALORIES	
breakfast	1 1/2 cup grapefruit sections *Hot Egg Coffee or tea with 3 tbsps. skim milk TOTAL 200
lunch	4 oz. tomato juice 2 oz. drained tuna fish, surrounded with raw vegetables with 1 tbsps. French dressing 1 1/2 water Coffee or tea with 3 tbsps. skim milk TOTAL 200
snack	(May be had at mid-afternoon or evening) 8 oz. skim milk TOTAL 90
dinner	*2 1/2 portion Pickled Beet and Cucumber Salad *1 1/2 Baked Chicken Breast *Baked Asparagus 1 canned peach half Coffee or tea with 3 tbsps. skim milk TOTAL 400
snack	8 oz. skim milk TOTAL 90
TOTAL CALORIES FOR DAY	
Total fat calories 50% of menu Total polyunsaturates 37% of fat Total cholesterol 230.7 grams	

menu 1

lunch substitution

1 1/2 cup grapefruit sections
 *Hot Egg
 Coffee or tea with 3 tbsps. skim milk
 TOTAL 200

4 oz. tomato juice
 2 oz. drained tuna fish, surrounded with raw vegetables with 1 tbsps. French dressing
 1 1/2 water
 Coffee or tea with 3 tbsps. skim milk
 TOTAL 200

(May be had at mid-afternoon or evening)
 8 oz. skim milk
 TOTAL 90

*2 1/2 portion Pickled Beet and Cucumber Salad
 *1 1/2 Baked Chicken Breast
 *Baked Asparagus
 1 canned peach half
 Coffee or tea with 3 tbsps. skim milk
 TOTAL 400

8 oz. skim milk
 TOTAL 90

TOTAL CALORIES FOR DAY

Total fat calories 50% of menu
 Total polyunsaturates 37% of fat
 Total cholesterol 230.7 grams

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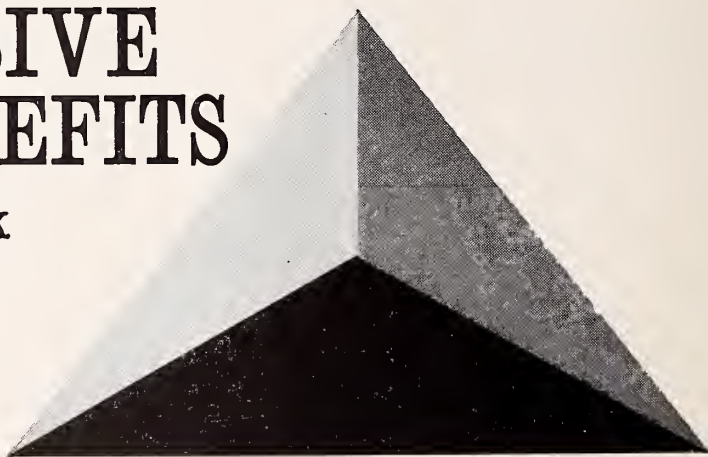
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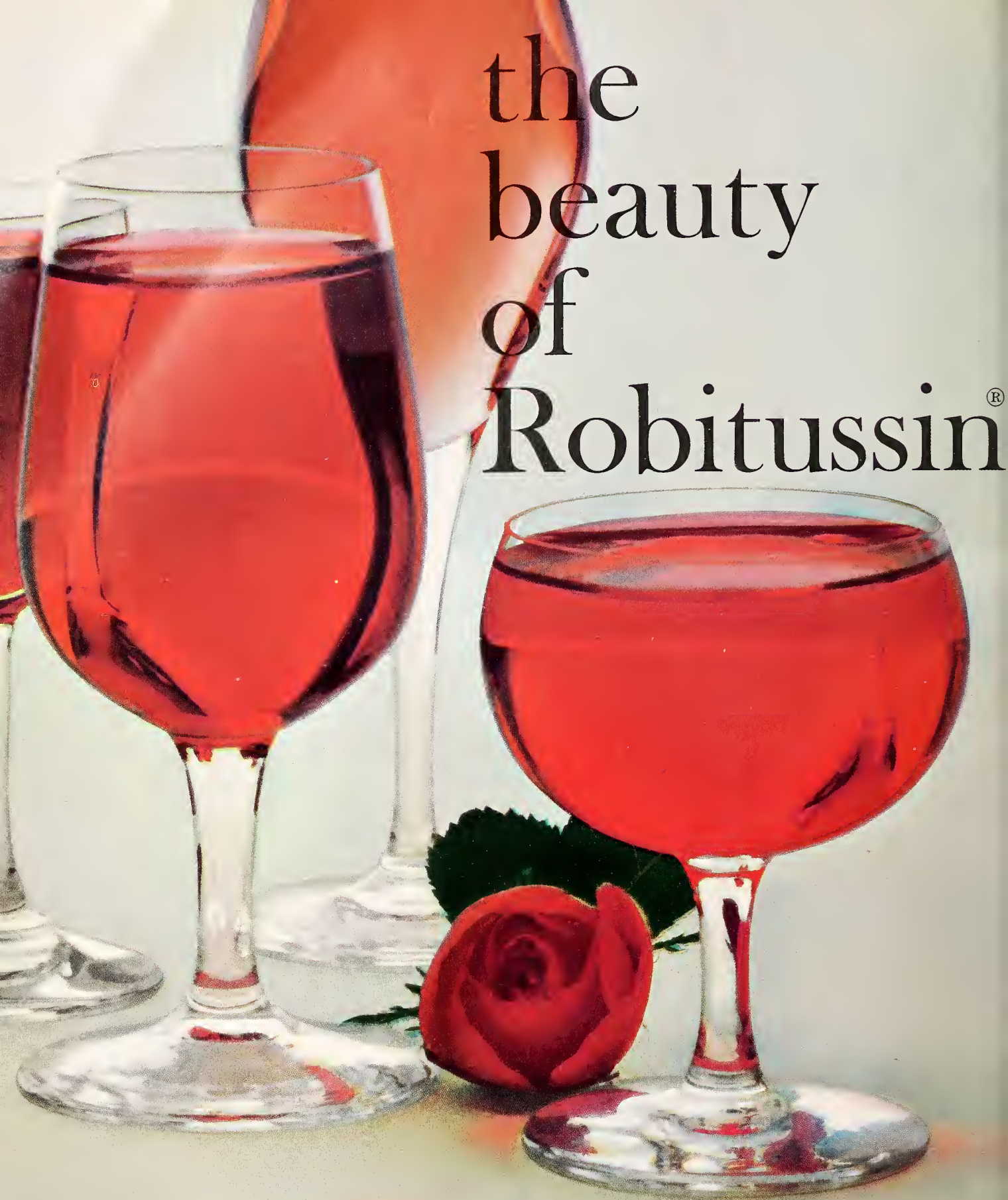
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The President's Page

The Relevant Issue

Lindsay E. Beaton, M.D.



Lindsay E. Beaton, M.D.

The essence of an historical epoch is distilled from the vital preoccupations of its people, or at least from the concerns of the leaders who dictate the tone of the times. Military conquest, economic aggrandizement, religious conversion, and cultural preeminence have all been chapter headings in man's annals. Each age centers on what it finds fateful, and landmark ages are measured

by great issues. In a century of popular vote and popular information, the focus shifts to what the public as a whole believes important, or can be induced or persuaded to so consider. We may now have reached one of the watersheds of history that will determine the course of a long stretch of the future. When the outlook of the world is clouded, when national purpose has faltered, when the very structure of medical practice is questioned, it may be useful to stand back from events and try to extract the

significance from the long term.

One of America's most perceptive social critics, Peter F. Drucker, in a sardonically titled article, "The Almost Secret Art of Being an Effective President", in a recent issue of *Harper's Magazine*, has defined a conception that is fruitful in fields other than politics, perhaps in every modern aspect of the human condition. He says that to be potent, the chief executive of this country must learn to aim national effort at "the issues that are relevant to the situation. 'I would rather be relevant than right' should be the motto of the effective President. The right answer to an irrelevant question misdirects. But the wrong answer to a relevant issue still puts the spotlight where it belongs." Mr. Drucker then points to questions that still occasion political noise but for practical purposes have been settled — isolationism versus internationalism, war versus peace, communist economic efficiency versus capitalism, unrestricted free enterprise versus the welfare state. For better or worse internationalism has been chosen, war is unthinkable with nuclear weapons, both Western and totalitarian economics have demonstrated capacity to produce material goods and technical knowledge, and the welfare state is the certain shape of the new society of the century. As

Sidney Hook of New York University has observed in another place, "Even those who condemn the welfare state will, in the very interests of national security, have to continue it. Today its only alternative is the 'ill-fare' state." In contrast, the relevant issue, says Drucker, is freedom versus tyranny. This is the contest that lights the day, too often with shadows of tragedy. His clarification finds reflection in the contemplations of others. For example, Salvador de Madariaga, though he emphasizes that his injunction does not imply martial adventuring, says in his latest book, "The West should make it clear and official that its aim is the freedom of all the nations and peoples of the earth."

This is a deceptively simple theorem that may yet be the signature of the age. It cuts through the dead wood of past problems; it raises an inspiring objective; it is a daring vision for an extraordinary time. To an American it evokes a purpose deeply imbedded in the democratic experiment. In "The Purpose of American Politics," Hans J. Morgenthau perceives in our history the specific mission of seeking equality in freedom. He hopes for a renewal of enthusiastic dedication to this resolve if we are to regain the high road of our destiny as a nation. This is no place to write a political treatise, but it is heartening to remark that a realization of the urgency of freedom as a national aim exists on both sides of the party street. It was one of the leit-motifs of the Kennedy campaign, and on the other hand it is the illuminating faith in Barry Goldwater's "The Conscience of a Conservative." We satirize what we hold dearest, and the love of liberty underlies Mark Twains often quoted remark: "It is by the goodness of God that in our country we have three unspeakably precious things: freedom of speech, freedom of conscience, and the prudence never to practice either of them."

This definition of the relevant issue of the era can be applied to every sector of the culture. Its application to medicine is especially telling. First of all one may count the medical disputes that have been disposed of, that no longer merit the attention of serious argument. Decisions on these questions have become part of the living tissue of the profession. The once bitter battle of group or panel practice against solo practice is an initial example. No matter how

loudly some dissenters may howl, the economics and efficiency requirements of modern medicine have brought various kinds of groups into spreading existence. There is no back-tracking along this road. The choice between individual financing of the costs of illness or group health insurance has also been made, and the profession as a whole welcomes the growth of the health insurance principle. Private medical education under auspices largely controlled by organized medicine has been replaced by academic management, often under State patronage, with federal aid, direct or indirect, as indispensable backing. The issue has been settled. No matter what debating points are adduced in the future, national financial assistance to medical schools is going to increase, or the institutions are going to be unable to do their jobs, which is an intolerable alternative. This is not to say that such intervention does not breed real threats to academic and medical independence, but only the deluded can fail to see that federal aid to professional training is nonetheless here to stay. Another decided question concerns fee schedules. The day is over of unrestricted license to charge all that the patient will tolerate. Probably we are also seeing the last of the venerable custom of collecting fat fees from the rich to balance eleemosynary care of the poor. The doctor can play at being neither Robin Hood nor Karl Marx; the equalization of socio-economic disparities is not his role. The actuarial demands of insurance plans, popular concern with the expense of sickness, and an increasingly egalitarian social order have combined to ensure the final victory of the fee schedule conception, in spite of the ululations of those who find it a peremptory standardization of the worth of medical and surgical procedures. The relative value formulation has been given its lumps lately, but its acceptance also seems solid. Governmental participation in vendor payments has been approved in the Medicare program and in such State agencies as our own Industrial Commission. The shapes that such schemes will take may well vary; general indorsement of the system is no longer in doubt. The approach of vendor medical payments for the indigent aged is the heart of the Kerr-Mills bill that the AMA and organized medicine in the States supported whole-heartedly in the last Congress. Additionally, any thought that the physician can still perform alone all aspects of medical care has

lost its pertinence. The doctor now gladly recognizes the contributions of the technician, the nurse, the pharmacist, the social worker, the clinical psychologist, and a host of other members of the therapeutic team, no matter how much some may protest that there is a dark plot to grant the physician's prerogatives to these ancillary groups.

Finally it may be said that the preservation of private practice is no longer a primary issue in medicine. This statement will be anathema to some, who would violently insist that the future of the profession rests on society's election of private practice or "socialized medicine." They would contend that only as private practice can medicine conceivably remain progressive and independent. This conviction can be examined to sharpen the query, and an analogy can perhaps be drawn from private financial enterprise. Charles F. Darlington, a business man and corporate executive, formerly assistant chief of the State Department's Division of Trade Agreements, has offered some piercing comments on the latter in a late publication. He notes that, "Nations, like individuals, can make vices of their virtues. Private enterprise is a virtue as a successful method of organizing society for production, but it takes on the color of a vice when, as today in the United States, it is widely regarded as the ideal of society. It is a means to a good society, but we are making it society's goal." These provocative insights can be applied as well to medicine. The goal of the doctor is maximal care for the sick. Private practice is a means to that end. Most of the physicians of this country believe that the present system has provided and will continue to provide unparalleled medical resources and ready access to them. But private practice is not sacrosanct, not an inviolable purpose in itself. If another method of dispensing the fruits of medical science could be shown to be superior, the profession would surely adopt it. We strive for the health of our patients and the cure of their illnesses and not fundamentally for the continuance of a certain economic way of distributing medical services. Individual responsibility is one thing; private practice is another. They are not necessarily synonymous. The American physician is simply unconvinced that current usage has been challenged by any substitute that would do the medical job as well

or better and would preserve the integrity of his calling.

These causes have the smell of dead battlefields, and those who carry their banners are shouting their war cries backward down the corridor of medical history. No scientist can cherish more than mere sentimental fondness for outworn dogma, and leading our profession into a rigid identification with political principles that may be tomorrow's anachronisms is not the way to make it a living force in today's society. Nostalgic remembrance of the familiar past should not cloud our responsibility to be realistic about our future.

For medicine too the relevant issue is freedom. Its pursuit is as vital and meaningful for a profession as it is in the larger socio-historical sense or in the definition of national purpose. Indeed, if freedom is in truth the root of national purpose, it cannot help but also be the root of a profession that plays a considerable role in the republic.

Freedom for medicine is of course professional freedom only — freedom to set the standards by which its members shall be judged, freedom to outline the curriculum by which its apprentices shall be taught, freedom to prescribe such treatment as physicians find necessary for the healing of the sick. It does not mean that the unscrupulous and the mercenary can assume with a whoop and a hurrah that the lid is off. It is not license to exploit the public for personal gain through secret remedies, excessive fees, or unnecessary ministrations. There is no liberty to strike against the interests of the sick for reasons of the doctor's economic advantage, or to withdraw from service to the public out of objection to socio-economic trends. Finally, no franchise is included to utilize the prestige of the profession as a partisan political tool in advocacy of any undertakings other than those of medicine itself. These declarations are obviously a restatement of ethical considerations that have long guided professional conduct. None of these forbidden immunities would be regarded as other than preposterous by the honorable physician. One mentions them more for the comfort of the laity than as a necessary reminder to doctors.

Is this a real issue? Is the freedom of medicine actually threatened? I think it may fairly be said that it is, just as the freedom of other

professions and intellectual callings is threatened. Scientists, teachers, journalists, even creative artists have all felt the same cold breath on their backs. Doctors have always been singularly autonomous; they are probably the most completely self-governing segment in a society that is becoming rapidly collectivized. This fact makes them an obvious target.

The first threat to the independence of medicine obviously comes from managerial bureaucracy, which increasingly means political bureaucracy. No belaboring is required to prove the point that the average bureaucrat is not basically concerned with individuals; he is concerned rather with the efficient working of the bureaucracy. He is not interested in research, in scientific progress, probably not in change of any sort, which can only tangle the red tape. He is obsessively addicted to paper work, deadlines, budgets, and protocol. The climate he creates has proved to be very irksome for scientists working for the government. It could only be equally vexing and obstructive for doctors in a federalized medical system. The danger emanates not only from Washington; it can be equally intrusive at a municipal, county, or state level. If anyone needs an object lesson in the menace to medical practice of local governmental bureaucracy let him meditate on the relatively benevolent empire of the Industrial Commission of Arizona. By law this State insurance organization can transfer your patient to another physician, can order consultations or examinations on your patient without requesting your permission or notifying you, even if such procedures might in your judgment be deleterious. It not only has the legal right to do these things; on occasions it does them. It is abundantly clear that the I.C.A. reflects the interests of the employer and the insurance carrier as opposed to the interests of your patient, the sick or injured workman. This occurs without any conspiracy in an agency run by perfectly honest people, doing their very good best, and assisted by committees appointed by your Association, committees of competent and irreproachable physicians. Modern psychiatry vouches for the understanding that none of us is able to abolish unconscious bias. None of us can discount the prospect of unconsciously favoring the viewpoint of the people he works for. The potential is far graver. So far we have been protected by appointments of high caliber to the

posts of Commisisoners. The existing set-up could be subverted by various pressures to allow all kinds of abuses, premature closure of cases, cover-ups on lost-time accidents, black-lists of the doctors who are thought to be too "soft" on the injured workman. Fortunately, the day is not yet.

Medical liberty is put in jeopardy in other ways, more indirect and more subtle. There is for example genuine peril in control over professional education through the grants and research assistance that a medical college receives and on which its life depends. This is partly governmental paternalism, partly mothering from the great foundations. It is an endangerment that exists not only for the medical schools but for all branches of the nation's universities, and in fighting which we can join forces with other scientists and with educators. There is the hazard, more hidden still, of conventionality, social, political, academic, even professional. In a delicately balanced age, dependent on technological continuity, rebellion seems so dangerous. Yet medicine, like any science, must reserve its right to slap the face of the axiomatic. Burying the independent and skeptical spirit of experimental discovery under an undisturbed ground of conformity would be the end of what makes human beings human. As Arnold Toynbee has put it, "Mankind's only capital asset is the creative power embodied in individual men and women. Short of genocide, it is hard to think of any worse fate that we could inflict on ourselves than to transform ourselves into human ants or bees." Like any other human endeavor, medicine is under strong pressure to conform to the mores of the time, and the threat of intellectual submission at its worst is made vivid by the perversions of German medicine under Hitler. In fact no scientist can allow himself to be carried away by social or political vogues and especially by currents of intellectual fads. Conformity and non-conformity have no pertinence to the scientific task, and one can be as enslaving as the other. Jean Cocteau has wryly commented, "*Le conformisme anticonformiste est à la mode, L'avant garde est devenue le classicisme du vingtième siècle.*" Epigrams are always more impressive in French. You need know little French to decipher this one.

If big government is a threat to the freedom of the physician, so is big business, and so is

big labor. Neither the business man nor the labor executive is solicitous about the liberties of our profession; they are preoccupied with the use of the doctor in furthering their ends in the industrial power struggle, and with gaining kudos and advantage through making medical services available to employees. So far the inevitable loser in every battle has been the private practitioner, whose area of coverage is successively limited. Can the physician be employed by industry or by a major union, or for that matter by government, without losing some of his professional independence? Most physicians are far from convinced. Institutions must be devised that will both fit modern socio-economic realities and yet safeguard medicine's traditional self-reliance. Our first present hope is in wide extension of the health insurance plan. Practical implementation of some such hope is a necessity if we are to maintain professional freedom.

Even though one says it hesitantly, perhaps the doctor's scope is also compromised by "big medicine." In spite of the democratic, representative structure of organized medicine, it is now so immense and complex that the individual member's stand is largely dictated from on high. He is unlikely to make his thoughts known, unlikely indeed to have the facts for a personal formulation. As in every field in modern civilization, in medicine too a few men make the critical decisions, which are then sold to the rank and file. Our professional autonomy has also been narrowed by ancillary groups in medicine, for example by the hospital administrators, who regard us as a necessary but willful set of retainers, to be brought into line on such transgressions as ordering too many laboratory tests. It is equally restricted by the groups concerned with hospital accreditation, who have clearly had large infusions of bureaucratic blood. Our freedom is not limited, as the popular press would recently have it, by a guide rule of rewards and punishments. In fact these accounts of the power structure of medicine are fantastic to the point of paranoia. Rather are we endangered through relinquishment of personal control over certain faces of our destinies. We can regain that control only through awareness of its seepage and through plugging the leaks by unremitting participation in the social and political and educational aspects of medicine as

well as in its scientific and clinical phases.

One last word on the immediate apprehension of the average physician, the threat to his practice by government payment for medical care. There is widespread public misapprehension that doctors oppose state financing mainly because they feel that it would reduce their personal incomes. This surmise is the principal source of the fading of the doctor's image, and it is not to be met by still further economic and political broadsides from the upper brass of national medicine. Rather do our fellow citizens have a right to our legitimate opinion. In even the crustiest reaches of conservative medical thought there is no doubt about the physician's real misgiving, that his authority over his purely professional responsibilities will be removed by state control. He fears that government financing means government interference. He asks to be shown how it cannot. This simply is his real concern. And it is one that the public will understand.

What is medicine's program to counter these threats? What are the affirmations through which doctors can guarantee their professional freedom, preserve it and enlarge it? First, they must take an unmistakable stand on the principles that cannot be relinquished if their calling is to remain true to its social charge. These include general supervision of the content of medical education and the right to set the criteria by which doctors shall be evaluated. Neither of these principles can conceivably be delegated to a lay group. Third, there must always be the privilege of choice of the profession and no barrier to entrance of the best young minds that it can attract. There must be no state dictation of which young people will go into medicine and which into other vocations. Nor should there be sorting by status standards of any sort — money, social class, religion, color, or political belief. Fourth and imperative, we can never resign our primary responsibility for the patient. Whoever may pay for his care, his health is the doctor's commission alone and his recovery from illness the doctor's task.

It does not seem unreasonable, in connection with the voicing of these precepts, to ask that society go slowly in changing what has worked so well and not jettison a system that has been a pragmatic success. This is not a plea for hide-

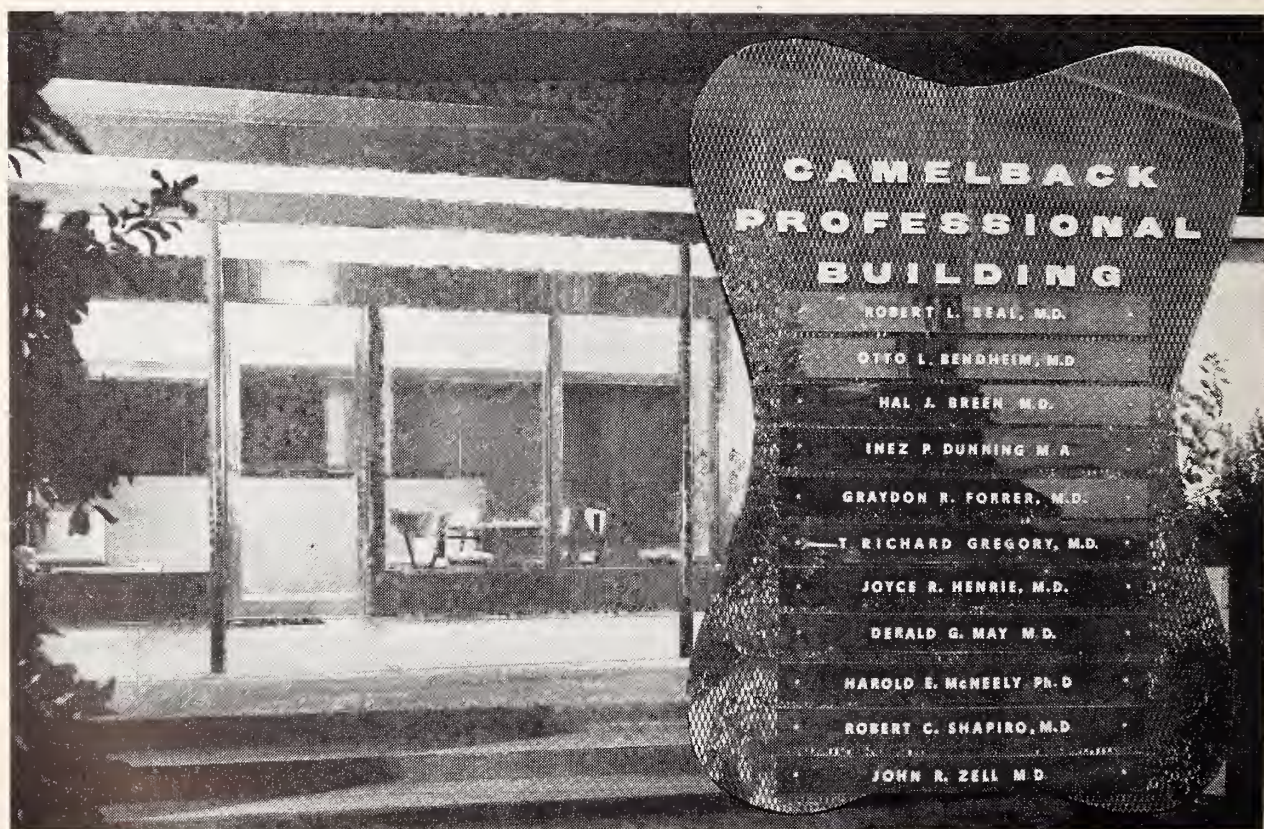
bound following of the beaten track. Medicine is always eager to try new treatments; it should be equally willing to consider fresh ways of bringing optimum care to all the sick. It does ask that any new social approach not destroy or dilute the very elements that have accounted for the excellence and progress of medical science in the modern era.

We should not confuse our point by longer beating the drums of the irrelevant, by attempting to make new cases out of settled disputes. We should keep our eyes fixed on the great issue, our professional freedom, our scientific and intellectual independence. Winston Churchill once said of Harry Hopkins that his great contribution to Allied strategy in World War II was his ability to see into the heart of any question. "Lord Root of the Matter," Churchill called him. It is this penetration that medicine needs.

Our defense of our ideals and our probity demand that we speak up, as individuals and as professional groups. This means that we

say our honest piece without equivocation in our own medical assemblies. It means that we declare ourselves strongly in legislative halls. It means that we acquaint politicians with the effect on medicine and on the public health of proposed modifications of economic or social patterns. It means finally that we enter the common forum. Our fellow citizens cannot be expected to help us champion the integrity of medicine unless we inform them.

Whatever we do, whatever we say, let it radiate from the relevant issue, the freedom of medicine to serve the health of the people. And let us repeat that we seek this freedom for the protection of our patients and not for the preservation of a personal economic position. It says in Ecclesiastes, "To every thing there is a season, and a time to every purpose under the sun." This is the season to recognize that the meaningful need of medicine is the sustenance of its professional freedom. And this is the time to make clear that our purposes are the health of mankind and the morality of our science.



5051 North 34th Street, Phoenix, Arizona

THE HOSPITAL BENEFIT ASSURANCE PLAN GUARANTEED RENEWABLE FOR LIFE



THE H. B. A. LIFE INSURANCE COMPANY
A LEGAL RESERVE LIFE AND DISABILITY CAPITAL STOCK INSURANCE COMPANY
HOME OFFICE: FIRST STREET AT WILLETTA • PHOENIX, ARIZONA • ALpine 8-4888

DUKE R. GASKINS, M.D.
MEDICAL DIRECTOR

February 1, 1961

Dear Doctor:

At about this time we can anticipate a drive for Social Security financing or Old Age Medical Care. Apparently congressional leaders have agreed not to push too hard for civil rights legislation in exchange for quick approval of several of President Kennedy's "hurry-up" programs including the Social Security Old Age Medical Care Bill.

We should remember that Social Security is not insurance and in arguments before the Supreme Court it was admitted by OASI that Social Security is just another tax.

The Social Security program now has \$20-billion in assets and \$360-billion in assumed obligations. Apparently this is going to have to be paid by future generations and adding Old Age Medical Care to these future obligations hardly makes sense. It seems like a dirty trick to play on our children, but it is apparently considered good politics.

Very truly yours,

Duke R. Gaskins, M.D.
Medical Director

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Guest Ranch Living

in this friendly Valley of the Sun resort area
lends a vacation-like atmosphere to
the patient's stay at Camelback Hospital.
Peaceful Camelback Mountain, standing serenely
above the surrounding citrus grove, helps
provide a setting to exercise a natural
therapeutic effect on patients as they
enjoy the well-rounded recreational program.

Camelback Hospital

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Crestwood 7-7431

PHOENIX, ARIZONA

OTTO L. BENDHEIM, M.D., F.A.P.A., MEDICAL DIRECTOR



Located in the heart of the beautiful Phoenix citrus area near picturesque Camelback Mountain, the hospital is dedicated exclusively to the treatment of psychiatric and psychosomatic disorders, including alcoholism.

STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)

For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Synicillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960

(continued)

ANNOUNCING—
SPECIFICALLY FOR
INFECTIONS DUE TO
"RESISTANT" STAPHYLOCOCCI

AN ENTIRELY NEW SYNTHETIC
"STAPH-CIDAL" PENICILLIN

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

UNIQUE—BECAUSE IT
RETAINS ANTIBACTERIAL
ACTIVITY IN THE PRESENCE OF
STAPHYLOCOCCAL PENICILLINASES
WHICH INACTIVATE
OTHER PENICILLINS



NEW SYNTHETIC PENICILLIN FOR "RESISTANT" STAPH

CUT HERE FOR FILING

CUT HERE FOR FILING

MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHICILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHICILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHICILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHICILLIN is stable in the presence of staphylococcal penicillinase. STAPHICILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHICILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHICILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHICILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg. ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 1 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHICILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHICILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHICILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHICILLIN therapy.

Toxicity studies with STAPHICILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHICILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHICILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

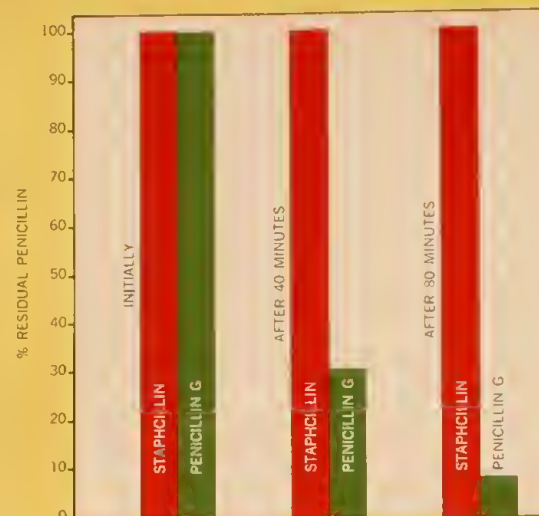
During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHICILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHICILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Synicillin) and STAPHICILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHICILLIN therapy, appropriate measures should be taken.

SUPPLY

List 79502 — 1.0 Gm. dry filled vial.

BRISTOL LABORATORIES • SYRACUSE, NEW YORK
Division of Bristol-Myers Company

UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN



In the presence of staphylococcal penicillinase, STAPHICILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time.
(After Gourevitch et al., to be published)

Specifically for "resistant" staph...

Staphicillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

The failure of staphylococcal infections to respond to penicillin therapy is attributed to the penicillin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

Unlike other penicillins:

1 STAPHICILLIN is effective because it retains its antibacterial activity despite the presence of staphylococcal penicillinase.

2 The clinical effectiveness of STAPHICILLIN has been confirmed by dramatic results in a wide variety of infections due to "resistant" staphylococci, many of which were serious and life-threatening.

Like other penicillins:

STAPHICILLIN has no significant systemic toxicity. It is well tolerated locally, and pain or irritation at the injection site is comparable to that following the injection of penicillin G. *In occasional cases, typical penicillin reactions may be experienced.*

PROFESSIONAL INFORMATION SERVICE — The attached Official Package Circular provides complete information on the indications, dosage, and precautions for the use of STAPHICILLIN. If you desire additional information concerning clinical experiences with STAPHICILLIN, the Medical Department of Bristol Laboratories is at your service. You may direct your inquiries via collect telephone call to New York, Plaza 7-7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

BRISTOL LABORATORIES • SYRACUSE, NEW YORK
Division of Bristol-Myers Company

When it's more like "grippe" or "flu" than a simple cold, but an antibiotic is not indicated... prescribe NEW WIN-CODIN* Tablets



New Win-Codin tablets provide greater symptomatic relief from influenza, colds and sinusitis than do simple analgesic-antihistamine combinations. New Win-Codin tablets contain a full complement of the most effective agents available to relieve general discomfort, bring down fever and lessen congestive symptoms.

Each tablet contains:

Codeine phosphate 15 mg.—to relieve local and generalized pain and control dry cough

Neo-Synephrine® 10 mg.—to shrink nasal membranes and open sinus ostia

Acetylsalicylic acid 300 mg. (5 grains)—to reduce fever and relieve aching

Chlorpheniramine maleate 2 mg.—an antihistamine to shrink engorged membranes and lessen rhinorrhea

Ascorbic acid (vitamin C) 50 mg.—to increase resistance to infections†

New Win-Codin tablets will bring more comfort to many patients suffering from severe colds, influenza or sinusitis.

Average dose: Adults, 1 or 2 tablets three times daily; children 6 to 12 years, from ½ to 1 tablet three times daily.

Available in bottles of 100 (Class B narcotic).

Winthrop LABORATORIES
New York 18, N. Y.

*Trademark †For persons with vitamin C deficiency
Neo-Synephrine (brand of phenylephrine), trademark reg. U. S. Pat. Off.

1961

Editorial

Neurotic Reaction

Disabling accidents result in some sufferings about which the physician or psychiatrist cannot testify as an expert. I am referring to areas of ordinary human experiences: anxiety over reduced income, fear of being replaced on the job, hope for sizeable indemnification, backwash of problems usually warded off by gain-

ful occupation. Worry and unhappiness and angry disappointment are to some extent normal and inescapable.

Distress is not a disease if it is proportionate to the distressing situation.

If the distress is disproportionate it may be the symptom of a psychoneurosis. But it is the

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Exclusive Publication — Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
7. Reprints will be supplied to the author at printing cost.

(The opinions expressed in the original contributions do not necessarily express the opinion of the Editorial Board.)

neurosis that causes the extraordinary distress, not the distress that causes the neurosis.

A psychoneurosis is *not* a result of stressful circumstances. The circumstances (injury, treatment, compensation) provide the conditions in which the individual reacts but not the causes of his reaction. The normal person reacts normally. The psychoneurotic reacts neurotically.

And the psychoneurosis is *not* a way of reacting to a stressful situation. A psychoneurosis is a reaction to a conflict of interest in a stressful situation. The cause of the neurosis, the necessary and sufficient and invariable factor, is the conflict of interests. Explicit in the definition of neurosis, of course, is that part of the conflict (the inadmissible wish or motive) is blocked from consciousness and is finding disguised or symbolic expression in the distressing symptoms.

W. B. McG.

CHLORAMPHENICOL

William Dameshek, in the December 3, 1960 issue of the J.A.M.A., so clearly again gives us a warning on Chloramphenicol. We encourage

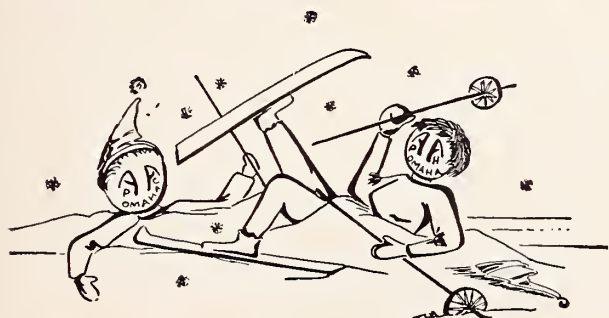
you to re-read this specific warning as it appears on page 1853 pointing out the necessity of limiting this drug to *impelling circumstances*, for this is not only a potent antibiotic but also an anti-metabolite.

CANCER

The Fourth National Cancer Conference showed us that the door is opening, so slightly, in the fields of virology, immunology, genetics and chemotherapy in the treatment of cancer. As much as can be hoped for in these fields, we are still failing as a profession to adequately warn and protect our patients in areas where knowledge now seems to be irrefutable.

The success of the Papanicolaou slide and the evidence of the damage of cigarette smoking necessitate that we properly advise our patients. Every woman over the age of 38 should receive yearly vaginal smears and Papanicolaou studies. Smoking should be discouraged.

The statistical evidence is overwhelming, but our advice can only be heeded if we follow it ourselves.



Protection Against Loss Of Income From Accident & Sickness As Well As Hospital Expense Benefits For You And All Your Eligible Dependents.

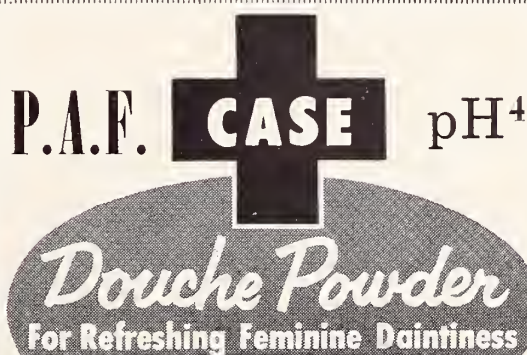


PHYSICIANS CASUALTY & HEALTH ASSOCIATIONS

OMAHA 31, NEBRASKA

Since 1902

Handsome Professional Appointment Book sent to you FREE upon request.

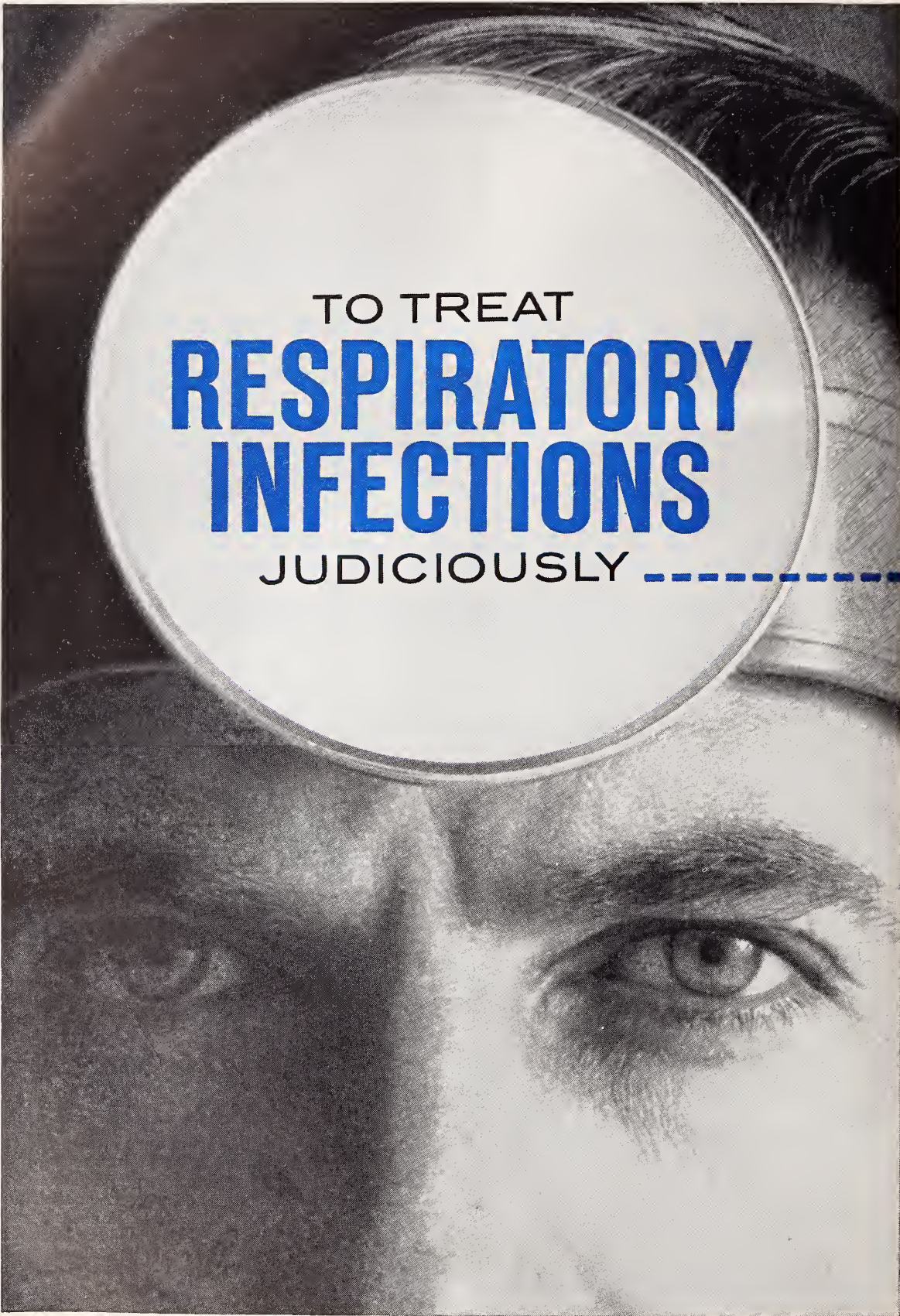


Rx

(FORTIFIED TRIPLE STRENGTH)

Buffered to control a normal vaginal pH. The new, improved P.A.F. formula now includes — sodium lauryl sulfate and alkyl aryl sulfonate, providing high surface detergent activity in acid and alkaline media. P.A.F.'s low surface tension increases penetration into the vaginal rugae and dissolution of organisms including trichomonas and fungus. P.A.F.'s high surface activity liquifies viscous mucus on vaginal mucosa, releasing accumulated debris in the vaginal tract. Non-irritating, non-staining, no offensive after-odor.

G. M. Case Laboratories
San Diego, California



When it's penicillin-susceptible
and the patient is not allergic
Use an orally maximal penicillin

MAXIPEN[®]

potassium phenethicillin



Consistent dependable therapeutic response through maximal absorption, maximal serum concentration and longer duration of inhibitory antibiotic levels for less susceptible organisms.

Available as Maxipen Tablets, 125 mg. and 250 mg.; Maxipen for Oral Solution, 125 mg. per 5 cc. of reconstituted liquid.

Literature on request

----- **or** -----

When you hesitate to use penicillin
(eg. possible bacterial resistance or allergic patient)

You can count on

TAO[®]

triacetyloleandomycin



Extends the Gram-positive spectrum of usefulness to include many staphylococci resistant to one or more of the commonly used antibiotics—*narrows* the spectrum of side effects by avoiding many allergic reactions and changes in intestinal bacterial balance.

Available as Tao Capsules, 250 and 125 mg.; Tao Oral Suspension, 125 mg. per 5 cc.; Tao Pediatric Drops, 100 mg. per cc. of reconstituted liquid; Intramuscular or Intravenous as oleandomycin phosphate. Other Tao formulations also available: Tao[®]-AC (Tao, analgesic, antihistaminic compound) Tablets; Taomid[®] (Tao with Triple Sulfas) Tablets, Oral Suspension.

Literature on request

and for nutritional support **VITERRA[®]** vitamins and minerals

Formulated from Pfizer's line of fine pharmaceutical products



New York 17, N. Y., Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being[™]

A black and white photograph showing a close-up of a person's nose. A hand is holding a nasal speculum, which is inserted into the nostril. The background is dark and out of focus.

it's clear...

in sinusitis, colds
and upper respiratory
disorders

NEW

DIMETAPP[®] Extentabs[®]

let your patients
breathe easier!



In sinusitis, colds and other upper respiratory and allergic disorders, new DIMETAPP Extentabs offer more useful decongestant therapy. Stuffiness, drip and other annoying symptoms of congestion are effectively relieved with minimum side effects.

UNSURPASSED RELIEF OF NASAL CONGESTION DIMETAPP Extentabs contain an unexcelled antihistamine, Dimetane, which has produced good to excellent results in thousands of cases of allergic respiratory disorders.* In DIMETAPP Extentabs, the action of Dimetane with two outstanding decongestants—phenylephrine and phenylpropanolamine—promptly dries secretions and reduces edema and congestion in the nose, the sinuses, and the upper respiratory tract.

CLEAR BREATHING FOR 12 HOURS ON 1 TABLET Long-acting DIMETAPP Extentabs offer up to 12-hour relief on just one tablet. Easier to use than nose drops or sprays,

DIMETAPP reaches into areas topical decongestants can't touch—without rebound congestion.

EXCEPTIONAL FREEDOM FROM SIDE EFFECTS With DIMETAPP Extentabs, there's little problem of either drowsiness or overstimulation. The antihistamine component, Dimetane, offers a high percentage of effective relief with only drowsiness as a possible infrequent side effect.* Small, fully efficient dosages of decongestants minimize the danger of overstimulation.

DIMETAPP Extentabs contain Dimetane® (parabromdylamine [brompheniramine] maleate) 12 mg., phenylephrine HCl 15 mg., and phenylpropanolamine HCl 15 mg. Dependable Extentabs construction assures relief of symptoms for up to 12 hours with 1 tablet.

Dosage: Adults—1 Extentab q. 8-12 hours. Children over 6—1 Extentab q. 12 hours. Administer with caution to patients with cardiac or peripheral vascular diseases and hypertension, and to those sensitive to antihistamines. See package insert for further details. **Supplied:** bottles of 100 and 500.

*Full bibliography on Dimetane available on request.

A. H. ROBINS CO., INC. Richmond 20, Virginia
Ethical Pharmaceuticals of Merit Since 1878



In over five years

Proven

in more than 750 published clinical studies

Effective

for relief of anxiety and tension

Outstandingly Safe

- 1 simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation
- 2 no cumulative effects, thus no need for difficult dosage readjustments
- 3 does not produce ataxia, change in appetite or libido
- 4 does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
- 5 does not impair mental efficiency or normal behavior

Miltown®

meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets.

Also as MEPROTABS®—400 mg. *unmarked*, coated tablets; and as MEPROSPAN®—400 mg. and 200 mg. *continuous release* capsules.



WALLACE LABORATORIES / Cranbury, N. J.

of clinical use...



...for the tense and nervous patient

Despite the introduction in recent years of "new and different" tranquilizers, Miltown continues, quietly and steadfastly, to gain in acceptance. Meproamate (Miltown) is prescribed by the medical profession more than any other tranquilizer in the world.

The reasons are not hard to find. Miltown is a *known* drug. Its few side effects have been fully reported. *There are no surprises in store for either the patient or the physician.*

NEW analgesic

Kills pain



stops tension

For neuralgias, dysmenorrhea, upper respiratory distress, postsurgical conditions...new compound kills pain, stops tension, reduces fever—gives more complete relief than other analgesics.

Soma Compound is an entirely new, totally different analgesic combination that contains three drugs. First, Soma: a new type of analgesic that has proved to be highly effective in relieving both pain and tension.* Second, phenacetin: a "standard" analgesic and antipyretic. Third,

caffeine: a safe, mild stimulant for elevation of mood. As a result, the patient gets more complete relief than he does with other analgesics.

Soma Compound is nonnarcotic and nonaddicting. It reduces pain perception without impairing the natural defense reflexes.*

NEW NONNARCOTIC ANALGESIC

soma[®] Compound

Composition: Soma (carisoprodol), 200 mg.; phenacetin, 160 mg.; caffeine, 32 mg.
Dosage: 1 or 2 tablets q.i.d.
Supplied: Bottles of 50 apricot-colored, scored tablets.

NEW FOR MORE SEVERE PAIN

soma[®] Compound + codeine

BOOSTS THE EFFECTIVENESS OF CODEINE: Soma Compound boosts the effectiveness of codeine. Therefore, only $\frac{1}{4}$ grain of codeine phosphate is supplied to relieve the more severe pain that usually requires $\frac{1}{2}$ grain.

Composition: Same as Soma Compound plus $\frac{1}{4}$ grain codeine phosphate.

Dosage: 1 or 2 tablets q.i.d.

Supplied: Bottles of 50 white, lozenge-shaped tablets; subject to Federal Narcotics Regulations.

**References available on request.*

 WALLACE LABORATORIES • Cranbury, N. J.

In Memoriam

Myron G. Wright, M.D.

1893 — 1960

Myron G. Wright passed away September 13, 1960. On December 23, 1958 he had an accident and suffered a spinal injury. Due to this accident he was totally disabled until his death.

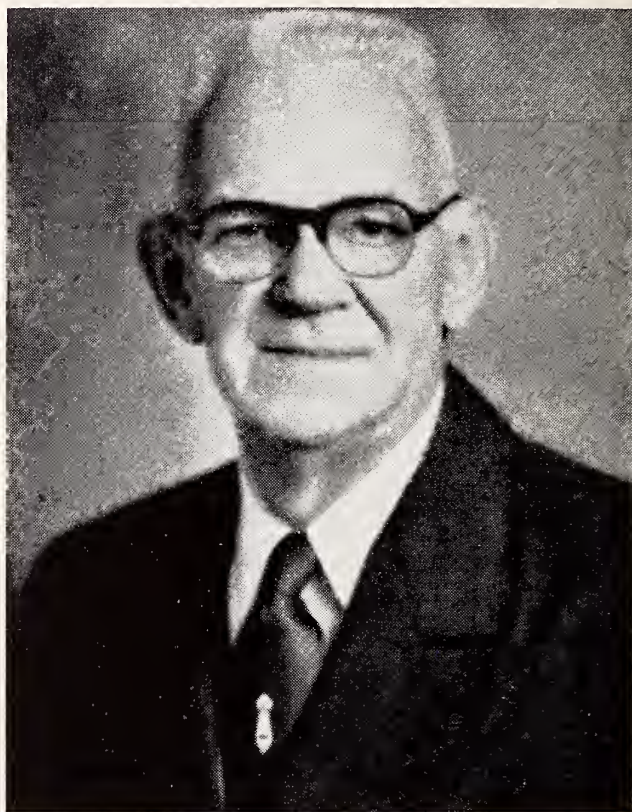
He was born in Morning Sun, Ohio on January 13, 1893. Father and Mother deceased.

He began his education in Ohio and completed it, along with his medical training, in Colorado.

Sports — played Basketball and Football in High School and College.

He received his degree of Bachelor of Arts at the University of Colorado. In 1917, the University School of Medicine awarded him the degree of Doctor of Medicine. He interned at Mercy Hospital.

In 1917 he was commissioned in the United States Navy Medical Corps, with which he served through the end of World War I and into 1920. He was released to inactive status with the rank of lieutenant senior grade. Returning to Denver in 1920, he served on the staff of the Fitzsimons Veterans Administration Hospital until the end of 1921. At that time he began practice in Denver.



Myron G. Wright, M.D.

In 1929, Dr. Wright came to Arizona, and on July 1 of that year began practice in Phoenix. On July 8, 1930, he moved to Winslow, where he spent more than a quarter of a century. He built the first hospital in Winslow. In 1945 he

built The Nancy Wright Clinic and dedicated it to his mother.

In addition to his private clientele, Dr. Wright served for more than twenty years as County Physician and served the Atchinson Topeka and Santa Fe Railroad as consulting surgeon, in the Winslow Division from 1937 to 1958, the year of his accident. He was president of the staff of the Winslow Memorial Hospital. He was a member of the American Society of Abdominal Surgeons, Arizona Medical Association, American Medical Association, Southwestern Obstetrical and Gynecological Society, American Academy of General Practitioners, and was a Fellow of the International Society of Medicine. He was a member of Omega Upsilon Phi medical fraternity.

He was a member of numerous bodies of the Masonic order, including all those of the York Rite and El Zaribah Temple, Ancient Arabic Order of Nobles of the Mystic Shrine.

He was active in the Winslow Chamber of Commerce and was a lifetime member of the

Winslow Lodge, Benevolent and Protective Order of Elks. He was also an officer in Charles Hathaway Post of the Veterans of Foreign Wars and a member of the American Legion.

He was of the Baptist Faith and voted the Republican ticket.

Dr. Wright was a skilled Physician and Surgeon, and a kind hearted man. He was a friend to everybody, regardless of color or creed.

He put two doctors through Medical School; one of those doctors he helped through high school and college. There were other doctors he helped to get started on their own. Today there are people in Winslow who are in business with the help of Dr. Wright. People from all the surrounding communities came to him. Indians from the Reservations travelled by horse and wagon even though they had their own doctors and hospital, many preferred to come to him. Dr. Wright was kind and understanding of them though very few could pay him. These Indian people loved the doctor and in their own way they tried to show their appreciation.

NATION'S PHYSICIANS TO GET WEEKLY MEDICAL NEWS REVIEW OVER REGULAR TV CHANNELS

A weekly review of medical news for physicians, using regular commercial television channels, will go on the air October 30 over a nationwide network, it was announced by Medical News Inc. of New York City.

The fifteen-minute program, "This Week in Medicine," will be broadcast on Sunday afternoons. The selection of the broadcast time was based on preferences expressed by physicians in cities where the program was tested with the cooperation of county medical societies.

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Topics of Current Medical Interest

Review of the Proposal for A New Tuberculosis Sanatorium In Tempe

Dermont W. Melick, M.D.

Phoenix, Arizona

On December 18, 1960, there appeared before the Board of Directors of the Arizona Medical Association, a group of individuals to speak in favor of the new tuberculosis hospital, now being contemplated for construction at Tempe, Arizona. Dr. Derrill Manley, a pediatrician, presented facts and figures, plus his personal opinion and experience, with regards to tuberculosis in children. Dr. Walter Brazie, as chairman of the State Board of Health, presented his interpretation of the recommendations as he has derived them from Dr. Clarence Salsbury, Commissioner of the State Health Department. In his presentation he also spoke knowingly from an experience of many years as a general practitioner in the City of Kingman, Arizona. Dr. Lloyd K. Swasey, Chief of Staff of the Arizona Tuberculosis Sanatorium, outlined in detail the thinking and recommendations of those individuals who take care of the medical and surgical needs of the tuberculous patients at the Arizona Tuberculosis Sanatorium.

After the presentations by these individuals a question and answer period was carried on at some length in order to elaborate on whatever may not have been made clear by the presentation. Thereafter the Board of Directors went into closed session for further discussion. A vote was then taken and the Board of Directors, acting in the name of the members of the Arizona Medical Association, went on record with the following resolution: "That we (the Asso-

ciation) go on record approving the building of a new tuberculosis hospital or hospitals; and that we instruct our Legislative Committee to make it a very high priority health program in the next year."

This paper is to inform the membership of the Arizona Medical Association about the foregoing action. Also, it is an appeal to the physicians and surgeons of the State of Arizona to back up the action of the Board of Directors of The Arizona Medical Association in the fullest meaning of the word. There may be questions which will arise in the minds of the membership of this association with regards to the proposed new tuberculosis hospital. What I have to relate to you hereafter, may resolve some of them. I also expect some consternation in the minds of some of my good colleagues.

If you will recall the year 1949, you may remember that the House of Representatives and the Arizona State Senate passed a bill allocating \$750,000.00 for construction of a Tuberculosis Sanatorium at Tempe. You may also recall that the bill was vetoed by the then incumbent Governor, (may his conscience rest in peace). It was stated at that time that the tuberculosis problem in Arizona would never be solved by legislation because of the inability to *resolve differences* of opinion, friction between doctors, and an incompatibility of the interpretation of the statistics originating in the State Health Department. There seemed to be radic-

ally divergent opinions between members of our own profession. This is to say nothing about individuals on the outside of the profession who seemed to know more about public health and tuberculosis than any expert then extant. It was stated that the tuberculosis problem would be solved by evolution alone. I would submit to you that in the interim of eleven years this evolution has taken place. We have now graduated to the proving ground and confidently expect to demonstrate that legislation and evolution are now compatible. We can solve our tuberculosis problem if we will dedicate ourselves and put forth a combined effort behind a big push.

The tuberculosis problem is with us. It will remain with us until we, as an association, and each one of us as individuals, make up our collective and individual minds to solve it to the best of our abilities. At this particular writing the legislature of the State of Arizona is in a receptive mood to listen to individuals of good conscience and straightforward honesty. If these individuals are forthcoming, cooperation by the legislature can be expected. To be able to present this attitude in a deliberate and incontrovertible manner means that the members of the Arizona Medical Association must have facts in hand. They must be willing to stand up and be counted. The members of our legislature are good men and women; honest, conscientious; and hardworking. What we say to them must be said with conviction, cohesiveness, and dedication of purpose.

If we as physicians and surgeons are to carry out our reputed aim in life then tuberculosis in the State of Arizona offers us one of our brightest and greatest opportunities.

I have not spoken here in specifics but I would now *like to* plunge you to the center of the problem by stating that the one over-all best solution of the tuberculosis problem would be a new two hundred bed sanatorium. The estimated total cost of this new facility would be \$3,229,480.00. I am sure that your reaction at this juncture is exactly like mine. When I read this figure my reaction was a double take and a retreat in defeat. Any exclamations you may make will not have been any louder than those that I made. Keep in mind however that there has been allocated Federal Funds amounting

to \$500,000.00. The Legislature has already appropriated \$50,000.00 as a "declaration of intent." If the State of Arizona is to take advantage of the Federal allocation the legislature must, in a minimum effort, place \$500,000.00 "on the line" in addition to the \$50,000.00 it has already appropriated. This would find the total cost estimate for the sanatorium to still be short by \$2,179,480.00. This is a tremendous sum of money. You and I know the legislature has other responsibilities to other institutions in this State. We as physicians can expect to be asked HOW BIG is the tuberculosis problem and what do we advocate as the BEST SOLUTION within keeping of the legislative responsibilities regarding the distribution of the tax dollar??? When this question comes up you and I must get down to basic specifics. We must labor in the framework between the most practical and economical best solution, in contradistinction to what might be termed the ideal solution at the "pinnacle of hopefulness." Basically, the evidence is incontrovertible that the present tuberculosis sanatorium is a decrepit, moth-eaten, decaying old structure which at its honorable best only is a glorified fire trap. It must be replaced. I think it is safe to say that legislators who have made personal visits to the sanatorium will agree with this statement 100%. If this is a basic agreement among the majority of the members of the Legislature then it is up to the physicians and surgeons to justify how many beds the sanatorium should have. It is the combined thinking of a number of well informed individuals that I now pass along to you. The basic, bone-bare requirements for a new tuberculosis hospital is 120 beds. This for adults alone. Dr. Derrill Manley presented statistics to prove beyond a shadow of a doubt that childhood tuberculosis represents a stinking cesspool which can only be eradicated by providing an additional forty beds. To those who would now retreat into the time-worn cave of "lies, damn lies and statistics" I submit a word of warning. Remember that to dispute certain statistics would be to controvert the *recorded* fact of *your own* paternity. If anyone would really like to go to bat about statistics please remember all of us for years have leaned heavily on this science. See editorial in *Science* for December 1960 "The Unwarranted Disparagement of Statistics". Dr. Manley is willing to stand up and fight for his statistics. *Beware of the idle remark that*

destroys by innuendo!!!

We could stop here and declare to one and all that this marks the final conclusion and draw a line of no retreat. We could state that our tuberculosis problem can be solved adequately and forever by importuning the Legislature to build these 160 beds for the care of tuberculosis in adults and children. It might actually be well for us to rest on our oars and hope the Legislature would accede to our opinions and conclusions. In your own mind you can arrive at some figure less than \$3,000,000.00, and surely more than \$1,000,000.00, in order to get the job done. HOWEVER —

You will recall that earlier in this dissertation I stated that for the over-all best solution it might be wise for us to build a 200 bed hospital. Let me go into the thinking behind this statement. This concerns a service that would be of great advantage to all of the doctors in the State. I am stating it now for your consideration and digestion. As you know (I hope!) the State Tuberculosis Sanatorium at Tempe has a "screening board." This screening board has the responsibility of reviewing all applications and determining whether or not the individual shall be admitted or rejected. You may be surprised to know this screening board has been belabored by some individuals throughout the State as arbitrary, dictatorial, and uncooperative. When in the general practice of medicine in Williams, Arizona, in 1938, I had the exact same opinion. I so expressed myself. I found it impossible to get the screening board to accept a patient with *far advanced pulmonary tuberculosis*. He was living in a hovel with ten other members of his family among which were five small children. It seemed a tragedy to me and a dereliction of responsibility of the screening board for him to be excluded from the very place where the public health authorities had led me to believe that tuberculous patients were cared for. And there was certainly no place in Williams, Arizona, for the care of an acute active case of tuberculosis. The tragedy continued as you might have surmised. This man, at my direction, went through the motions of isolation from his family. Just how do you isolate one man in a two room shack wherein reside ten other people?? I rest my case. The screening board received the brunt of my irate dissatisfaction. I am now on the receiving end as a member

of this screening board. As usual there are two sides to this story. The screening board has often refused cases classified as "not treatable." The individual physician in the outlying community does not look with favor on such refusal. The greater number of communities obviously cannot afford, and therefore do not have, any way of caring for an active case of pulmonary tuberculosis. The problem is nevertheless tossed back into the lap of the local physician. He thereafter looks with a jaundiced eye not only upon the screening board but specifically on the State Health Department. The screening board has had to refuse some cases because the diagnosis is not obvious. The local physician may make a presumptive diagnosis *but the screening board needs a proven positive diagnosis*. In this particular instance the local physician is again rebuffed. His blood pressure rises high and his coronaries receive another insult. And all of it is so unnecessary! He has less justification for dissatisfaction than the doctor in the first instance but both have legitimate gripes. Furthermore the screening board has in more than one instance experienced the uncomfortable sensation of political pressure. A physician (or some of his well intentioned community leaders) will come upon a patient that he (or they) decide must be hospitalized, screening board or no. A request for intercession is made to the Governor. The good Governor responds and arranges to have the patient hospitalized at the sanatorium. The patient arrives on the doorstep of the sanatorium and is tossed gently but firmly upon the desk of the administrator. This political gambit may result in the doctor being satisfied, the community leaders being satisfied and the Governor being satisfied. It certainly creates one big mess, to put it mildly. We have found this political deliverance of the patient often compounded by other considerations. The patient may not have tuberculosis! We then sit with a patient who is not only a political hot potato but he is also running the risk of contracting tuberculosis. One begins to wonder what legal responsibilities the sanatorium has in a case like this should the patient make claim against the state for infection with tuberculosis. This problem fortunately does not show up too often. It has happened, however. I see no reason why it should not happen again *in the future human nature being what it is*. It does point up the need for beds

in some state institution (and we are proposing that it be an adjunct to the tuberculosis hospital) in order to provide diagnostic services to the physicians and surgeons of the State. This would give the physicians a service they can and should have. If we are of a mind to accept this then we can quite readily justify another twenty beds. Our estimate on bed capacity has now reached 180.

Now for the final twenty beds *in order to reach* the "pinnacle of hopefulness," i.e. 200 beds. In the past year you have read and heard a good deal of shooting about the responsibility of the physicians and the governmental powers that be, either local or federal, to our senior citizens. I can assure you that no one of us, or for that matter, any one group of experts, comes forward as a final authority in geriatrics. We cannot pinpoint what we should be doing about it from either an acute or chronic care standpoint. I do believe however, that it is obvious to any thinking individual that we are faced with a responsibility to our elderly people. It is high time we started doing something about it. As far as "doing something" in this particular instance is concerned it has been suggested that twenty beds specifically reserved for acute medical and surgical geriatrics would be a minimal need for the State of Arizona.

In conclusion therefore, the "pinnacle of hopefulness" ideal for the new sanatorium at Tempe is as follows:

- 120 beds for adult tuberculosis
- 40 beds for childhood tuberculosis
- 20 beds for diagnostic services for the physicians in the outlying areas of Arizona
- 20 beds for geriatrics (acute medical and surgical problems of the aged)

Whether or not the legislature will look with favor on the suggestion for a 200 bed hospital remains for them to decide and for us to guide them. I would call to your attention that within the framework of this two-hundred bed estimate there is a good deal of room for manoeuvring of a kind that will allow us to do something of a constructive nature in the eradication of tuberculosis from the State of Arizona. We may be presented with the first real, solid opportunity to be of service to the people of our state. We can and should do it within the ability of the State of Arizona to carry the financial burden. If we recognize this and the Legislature recognizes this, how can we fail????

RESOLUTION — PIMA COUNTY MEDICAL SOCIETY*

A resolution from the Pima County Medical Society for consideration of the Board of Directors of the Arizona Medical Association and its Committee on Legislation in an effort to clarify the tuberculosis problem in the state of Arizona:

Whereas we recognize the fact that tuberculosis is one of the major medical problems and that every effort should be made to control and eradicate the disease, and

Whereas we believe the problem should be taken care of in each county as far as possible. This would apply particularly to the larger counties where adequate facilities for diagnosis and care of tuberculosis patients have been or should be developed. Pima County has excess beds for adults and excess beds for children and will not need, as in the past, any help from the State Sanatorium. We understand Maricopa County is planning to build a new county hospital which will probably provide 200 beds for tuberculosis patients. This will be accomplished and in use before a new state facility will be ready. It is hoped at that time Maricopa County will be able to care for its tuberculosis patients on a county basis. Among the smaller counties Gila, Yavapai, Pinal and Cochise provide suitable beds for the care of tuberculosis. This would leave eight of the smaller counties which do not have provision for care of tuberculosis patients and where there is need for a state facility, and

Whereas we do not feel that an emergency exists in the matter of constructing a new state tuberculosis sanatorium, and

Whereas the Board of Regents have a study in process at the present time which will undoubtedly find that a medical school should be established in Arizona and the site for such determined. A university medical school hospital would be established undoubtedly including an isolation wing with possibly fifty beds, which would take care of the tuberculosis problem for the smaller counties and even for some of the larger counties, and

Whereas between the present time and the development of such a university hospital isolation unit the present hospital at Tempe can well serve as it has during the last thirty years.

*Passed unanimously, regular monthly meeting, Jan. 10, 1961.

If it is felt that it would not be able to take care of all the patients, certainly beds may be found in other areas; the State Hospital for the Insane has 50 beds for tuberculosis, Pima County and other counties could help during the interim, and

Whereas we feel definitely that a large sum of state money should not be spent at the present time. Although it is an estimated project of \$3,000,000 it would probably come nearer \$4,000,000-\$5,000,000. This money would be sorely needed for the development of a new medical school. An isolation unit in the university medical school hospital could certainly use the

ancillary services and reduce the cost markedly in construction of such a unit,

Therefore, be it resolved that nothing be done toward building a new state facility for tuberculosis until the report of the medical study group is made on the establishment of a university medical school in which an isolation wing with beds for tuberculosis could be included with all the ancillary services provided by the university medical hospital with a great saving of money to the taxpayers of the State of Arizona.

Be it further resolved that an emergency does not exist in the matter of constructing a new state tuberculosis sanatorium.

ARTIFICIAL INSEMINATION

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(Medicolegal Digest)

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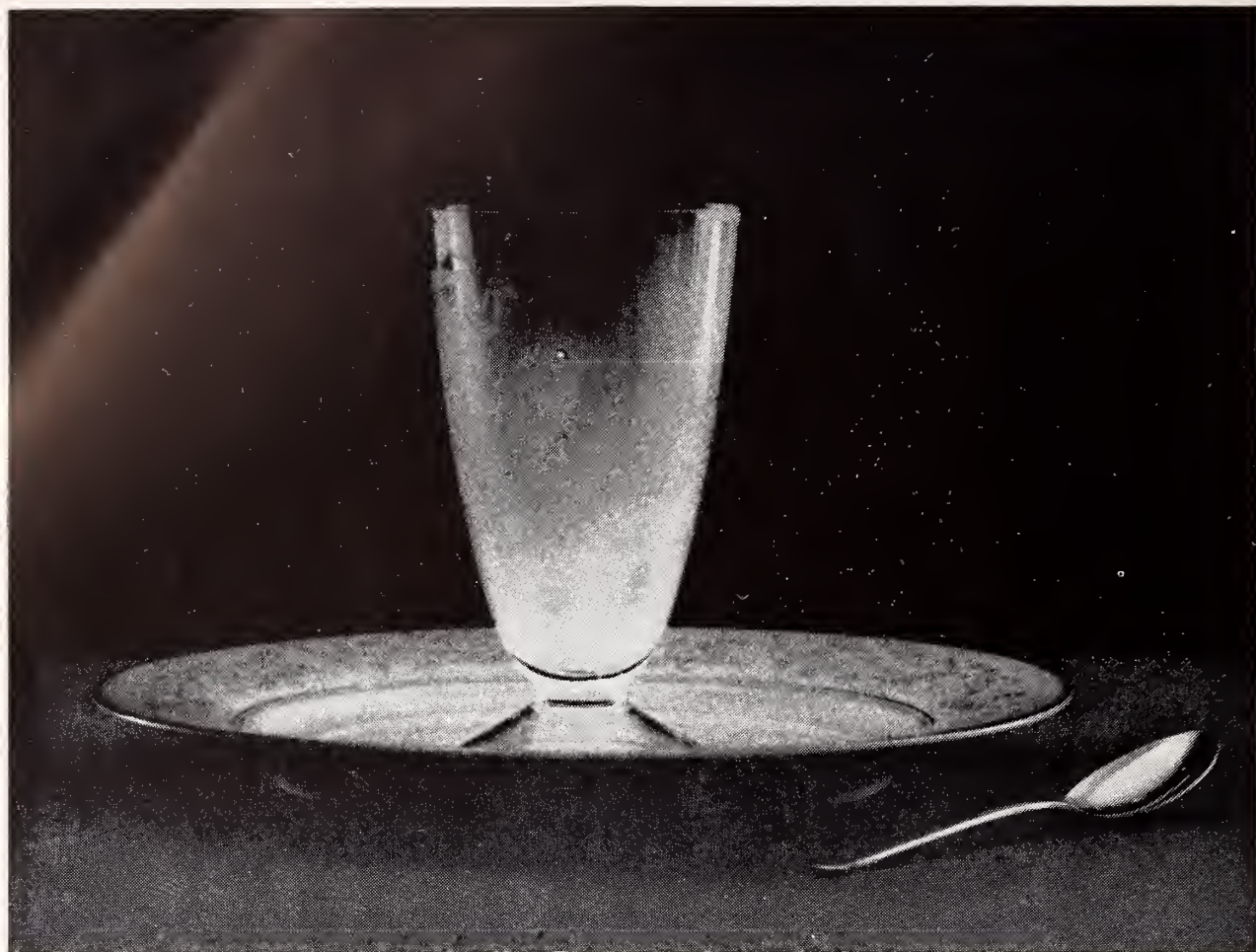
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*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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Future Medical Meetings

The Arizona Medical Association 70th Annual Meeting

70TH ANNUAL MEETING

April 25 through 29, 1961

Safari Hotel — Scottsdale, Arizona

The faculty for our 1961 Scientific Session, to be held April 27, 28, and 29, 1961, is:

Dr. Herb Abrams, Associate Professor of Radiology, Stanford University School of Medicine

Dr. Evans Calkins, Chief of the Arthritis Study Unit, Harvard Medical School

Dr. Alfred M. Steinman, Director of Scientific Research, G. D. Searle & Co.

Dr. Mahlon Delp, Chairman of Medicine, University of Kansas Medical Center

Dr. H. Corwin Hinshaw, Clinical Professor of Medicine, Stanford University School of Medicine

Dr. Robert T. Manning, Associate in Medicine, University of Kansas Medical Center

Dr. J. H. Mulholland, Professor of Surgery, New York University School of Medicine

Dr. John W. Rebuck, Physician in Charge, Department of Hematology, Henry Ford Hospital

Leslie B. Smith, M.D.
President-Elect & Chairman
Scientific Assembly
Arizona Medical Association, Inc.

PROGRAM

Thursday, April 27, 1961

7:45 A.M. Breakfast: Panel Discussion — Recent Advances in Steroid Actions and Uses.

Dr. Harry Thompson—Moderator

Dr. Robert T. Manning—Panelist

Dr. Alfred M. Steinman—Panelist

Dr. Evan Calkins—Panelist

Dr. John W. Rebuck—Panelist

Dr. Sharrel K. Conner—Panelist

9:30 A.M. Intermission — Visit Exhibits.

10:30 A.M. Lung Cancer: A Challenge to the Medical Profession, Dr. H. Corwin Hinshaw, University of California School of Medicine, San Francisco, California.

10:30 A.M. Opening Session.
Call to Order — Dr. Lindsay Beaton, Tucson, Arizona.

Invocation

Rev. Herbert P. Landes

Valley Presbyterian Church

Scottsdale, Arizona

Memorial Service

Rev. Herbert P. Landes

Welcome

Maricopa County Medical Society

Dr. Robert A. Price, President

- Response
President of Pima County Medical Society
Introduction of the Incoming President — Dr. Lindsay Beaton
Presidential Remarks
Dr. Leslie B. Smith
Presentation of Distinguished Guests
- 11:15 A.M. Physical Diagnosis in Cirrhosis of the Liver, Dr. Mahlon Delp, University of Kansas Medical Center, Kansas City, Kansas.
- 11:45 A.M. Management of Hepatic Coma, Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.
- 12:15 P.M. Intermission — Visit Exhibits
- 12:30 P.M. Surgery of the Liver. Dr. John H. Mulholland, New York University College of Medicine, New York, New York.
- 1:15 P.M. Luncheons

PROGRAM

FRIDAY, APRIL 28, 1961

- 7:45 A.M. Breakfast: Panel Discussion — Edema and Ascites.
Dr. Mahlon Delp — Moderator
Dr. H. Corwin Hinshaw — Panelist
Dr. Herbert L. Abrams — Panelist
Dr. John H. Mulholland — Panelist
Dr. Robert T. Manning — Panelist
Dr. Alfred M. Steinman — Panelist
- 9:10 A.M. Intermission — Visit Exhibits.
- 9:30 A.M. Applications of Thoracic Aortography, Dr. Herbert L. Abrams, Stanford University School of Medicine, Palo Alto, California.
- 10:00 A.M. Current Research in the Connective Tissue Diseases, Dr. Evan Calkins, Massachusetts General Hospital, Boston, Massachusetts.
- 10:30 A.M. Serum Enzyme; Use and Abuse in Clinical Medicine, Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.

- 11:00 A.M. Intermission — Visit Exhibits.
- 11:15 A.M. A New Qualitative Leukocytic Defect in Ulcerative Colitis, Dr. John W. Rebuck, Department of Laboratories, Henry Ford Hospital, Detroit, Michigan.
- 11:45 A.M. Annual Award Paper
- 12:15 P.M. Mechanism of Action and Use of Aldosterone-blocking Steroids in Edema, Dr. Alfred M. Steinman, G. D. Searle & Co., Chicago, Illinois.
- 1:00 P.M. Luncheons

PROGRAM

SATURDAY, APRIL 29, 1961

- 9:00 A.M. Combined Diuretic Therapy with Steroids in Resistant Patients, Dr. Alfred M. Steinman, G. D. Searle & Co., Chicago, Illinois.
- 9:30 A.M. Amyloidosis. A Search for the Answer by Chemical, Pathologic, Immunologic, Clinical and Geographic. Dr. Evan Calkins, Massachusetts General Hospital, Boston, Mass.
- 10:00 A.M. New Ultrastructural Diseases of Platelets as a Common Cause of Abnormal Bleeding, Dr. John W. Rebuck, Department of Laboratories, Henry Ford Hospital, Detroit, Michigan.
- 10:30 A.M. Roentgen Aspects of Pulmonary Hypertension and Increased Pulmonary Flow of Blood, Dr. Herbert T. Abrams, Stanford University School of Medicine, Palo Alto, California.
- 11:00 A.M. Visit Exhibits
- 11:15 A.M. Management of the Patient with Emphysema, Dr. H. Corwin Hinshaw, Stanford University School of Medicine, San Francisco, California.
- 11:45 A.M. Surgery of the Elderly, Dr. John H. Mulholland, New York University College of Medicine, New York, New York.

12:15 P.M. Luncheon

1:00 P.M. Golf Tournament — Prizes to be awarded at the 19th hole, following completion of the tournament.

LUNCHEONS

Arizona Arthritis and Rheumatism Assoc. — Dr. Evan Calkins, Massachusetts General Hospital, Boston, Mass. Question and Answer Period on Arthritis in Connective Tissue Disease.

Moderator — Dr. Donald F. Hill, Tucson, Arizona.

Arizona Chapter of The American College of Surgeons — Dr. David C. James, Chairman, Dr. John H. Mulholland, New York University College of Medicine.

Arizona Chapter of The American College of Chest Physicians — Dr. Andre J. Bruwer, Tucson, Arizona, Chairman. Bronchoscopy and

Bronchography in Diagnosis of Pulmonary Diseases. Dr. H. Corwin Hinshaw, Stanford University School of Medicine, San Francisco, California. Radiologic Aspects of Operable Heart Disease. Dr. Herbert T. Abrams, Stanford University School of Medicine, Palo Alto, California.

Arizona Society of Pediatricians — Dr. Hugh C. Thompson, Tucson, Arizona, Chairman. Inborn Errors of Metabolism. Dr. Robert T. Manning, University of Kansas Medical Center, Kansas City, Kansas.

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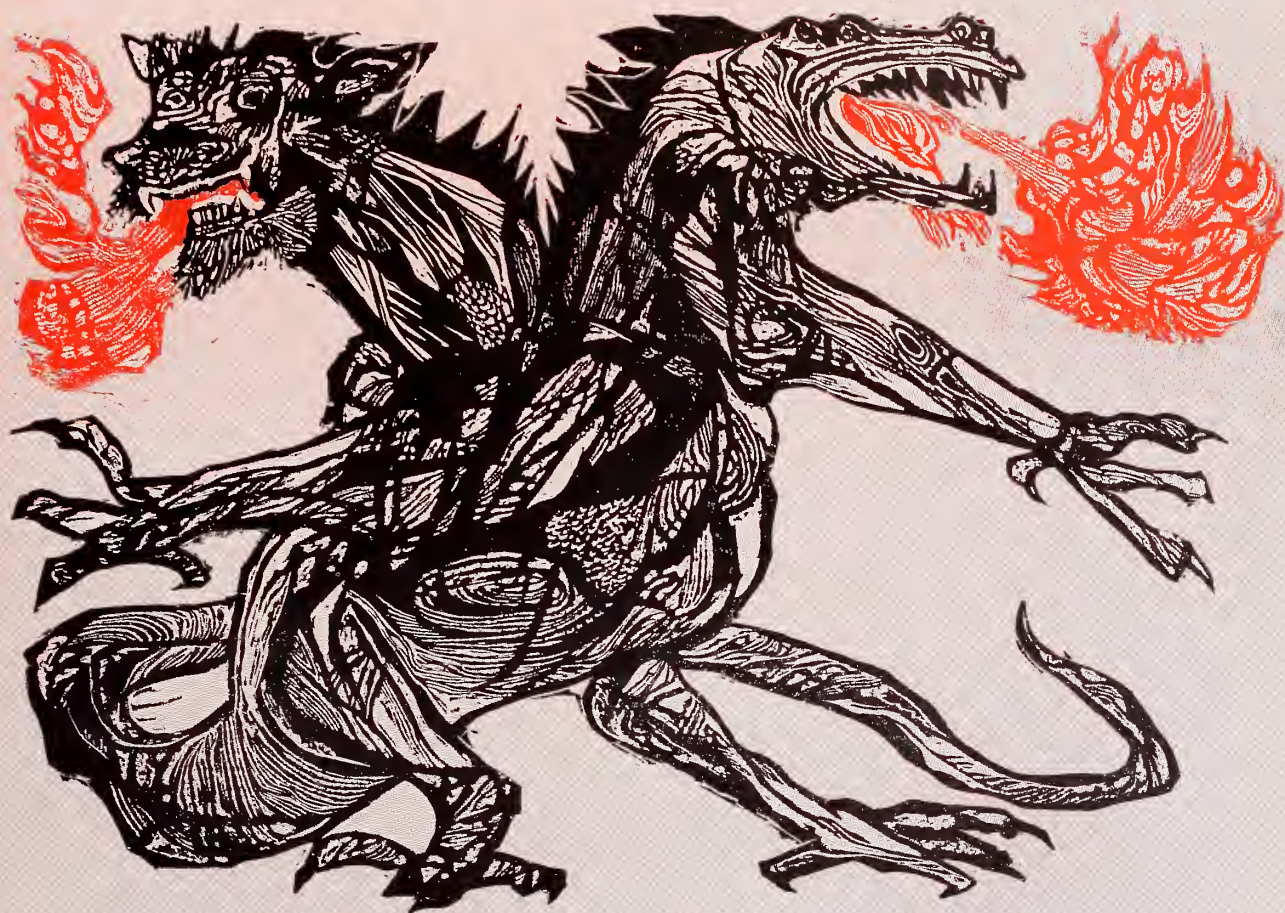
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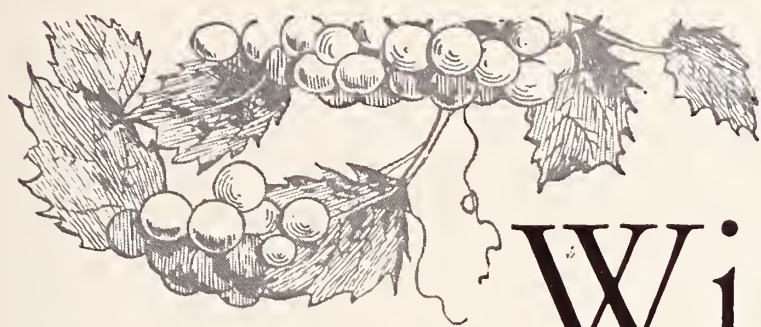
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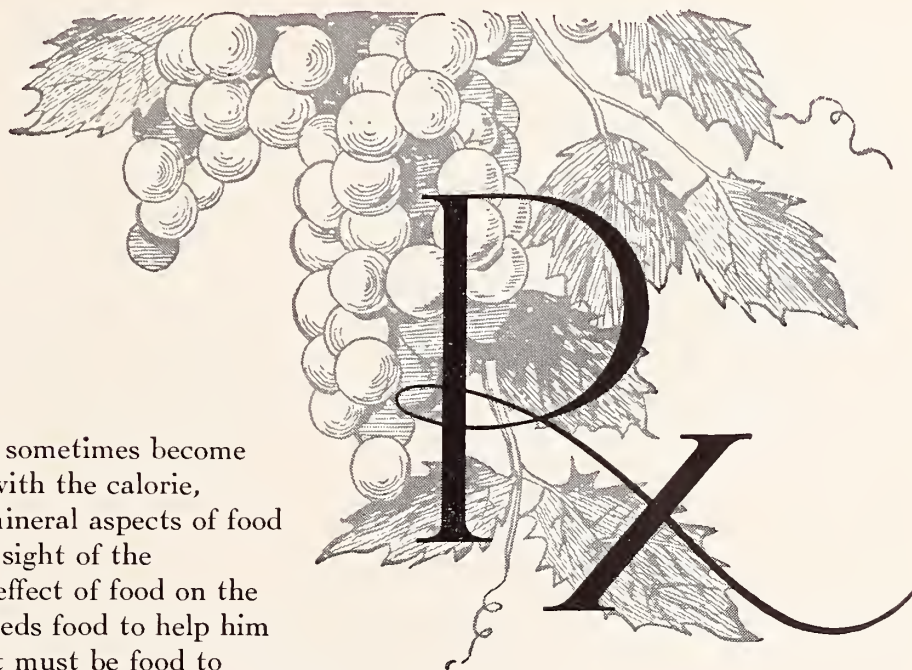
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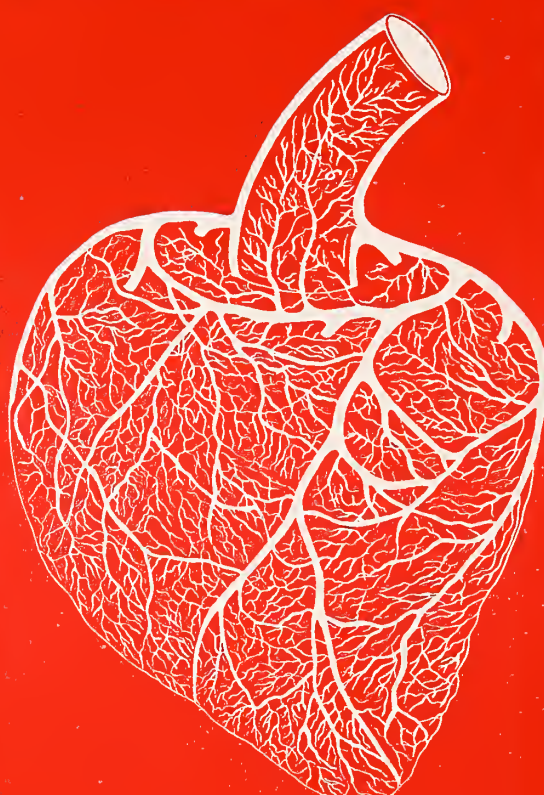
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*Floore, F. B.: Wine is Fine for Hospital Cookery, *Mod. Hosp.* 94:134 (June) 1960.

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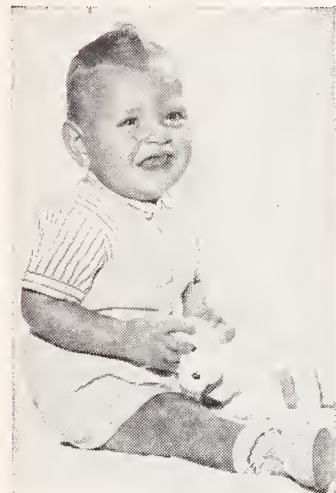
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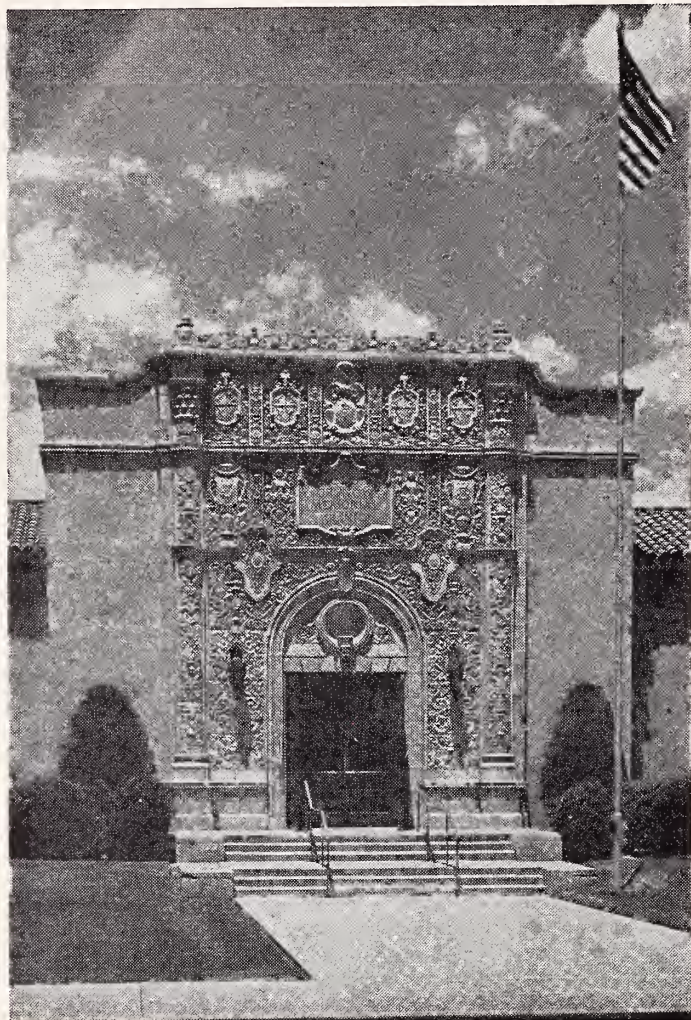
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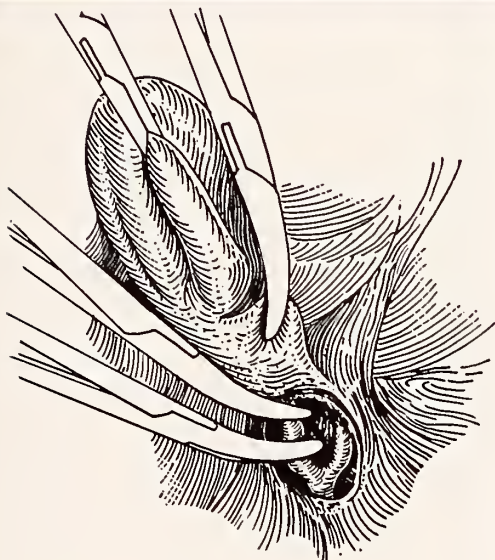
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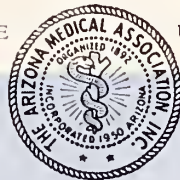


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BENADRYL Hydrochloride (diphenhydramine hydrochloride, Parke-Davis). Kapseals® of 50 mg.; Capsules of 25 mg.; Emplets® (enteric-coated tablets) of 50 mg.; in aqueous solutions: 1-cc. Ampoules, 50 mg. per cc.; 10- and 30-cc. Steri-Vials,® 10 mg. per cc. with 1:10,000 benzethonium chloride as a germicidal agent; Elixir, 10 mg. per 4 cc.; 2% Ointment (water-miscible base); Kapseals of 50 mg. **BENADRYL HCl** with 25 mg. ephedrine sulfate. **INDICATIONS:** Allergic diseases such as hay fever, allergic rhinitis, urticaria, angioedema, bronchial asthma, serum sickness, atopic dermatitis, contact dermatitis, gastrointestinal allergy, vasomotor rhinitis, phys-

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asthma, and status asthmaticus. **PRECAUTION:** Avoid subcutaneous or perivascular injection. Single parenteral dosage greater than 100 mg. should be avoided, particularly in hypertension and cardiac disease. Products containing **BENADRYL** should be used cautiously with hypnotics or other sedatives; if atropine-like effects are undesirable; or if the patient engages in activities requiring alertness or rapid, accurate response (such as driving). Ointment or Cream should not be applied to extensively denuded or weeping skin areas. Preparations containing ephedrine are subject to the same contraindications applicable to ephedrine alone.

when allergy looms large in the life of your patient...

relieves the symptoms of food allergy When the allergic patient can't resist eating an offending food, the ensuing punishment is often out of all proportion to the nature of the "crime." In such cases, BENADRYL provides a twofold therapeutic approach to the management of distressing symptoms.

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antispasmodic action Because of its inherent atropine-like properties, BENADRYL affords concurrent relief of gastrointestinal spasm, abdominal pain, nausea, and vomiting.

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antihistaminic-antispasmodic

***cuts most
allergens
down
to
size
!***

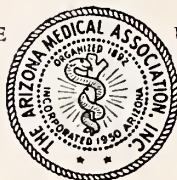


Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

March, 1961



Vol. 18, No. 3

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diarrhea

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- ✓ Adsorbs toxins and gases
- ✓ Soothes inflamed mucosa
- ✓ Provides intestinal antiseptics



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(equivalent to 2 cc. paregoric)

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Weigh these criteria—and make this comparison—when treating your next coccal infection. Erythrocine is a medium-spectrum antibiotic, notably effective

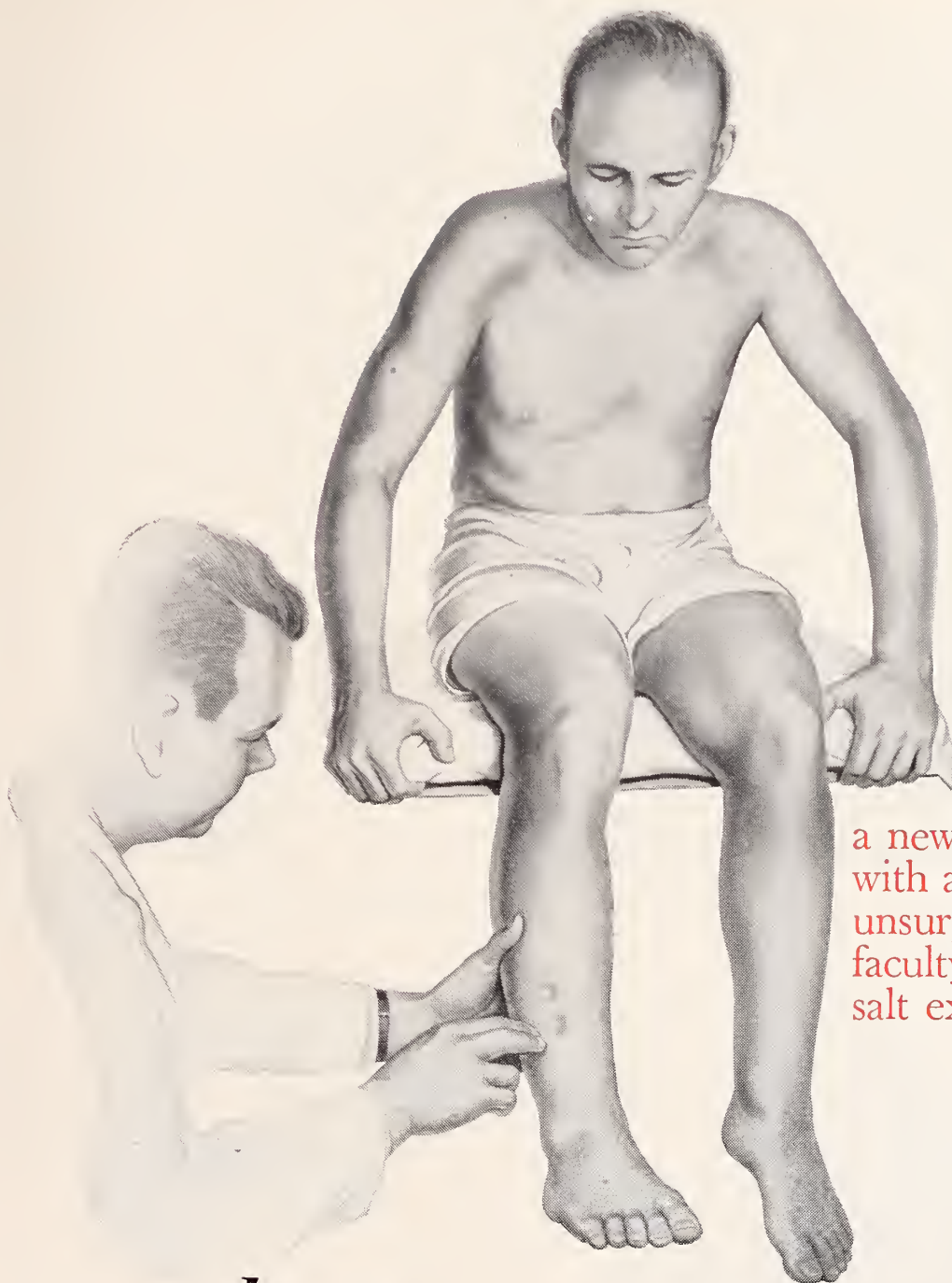
against gram-positive organisms. In this it comes close to being a "specific" for coccal infections — *which means it is delivering a high degree of activity against the majority of common infection-producing bacteria.*

And against many of the troublesome "staph" strains—a group which shows increasing resistance to penicillin and certain other antibiotics—Erythrocine continues to provide bactericidal activity. Yet, as potent as Erythrocine is, *it rarely has a disturbing effect on normal gastro-intestinal flora.* Comes in easy-to-swallow Filmtabs®, 100 and 250 mg.

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as salt goes, so goes edema

Robins' new NaClex is a potent, oral, non-mercurial diuretic that reduces edema by applying the basic principle that "increased urine volume and loss of body weight are proportional to and the osmotic consequences of loss of ions."¹ NaClex limits the reabsorption of sodium and chloride ions in the renal proximal tubules with a relative sparing of potassium. The body's homeostatic mechanism responds by increasing the excretion of excess extracellular water. Thus the NaClex-induced removal of salt leads to a reduction of edema.

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Supplied: 200 mg. yellow scored tablets, and 100 mg. pink tablets, each in bottles of 100 and 500.

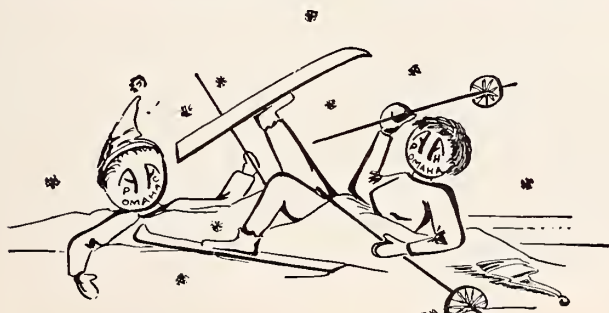
P.S. For the "Genericist", Dornwal is amphenidone

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(Salts of Dihydrohydroxycodone and Homatropine, plus APC)

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for pain

prompt relief
profound relief
prolonged relief

ACTS FASTER—usually within 5-15 minutes. **LASTS LONGER**—usually 6 hours or more. **MORE THOROUGH RELIEF**—permits uninterrupted sleep through the night. **RARELY CONSTIPATES**—excellent for chronic or bedridden patients.

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Each PERCODAN[®] Tablet contains 4.50 mg. dihydrohydroxycodone hydrochloride, 0.38 mg. dihydrohydroxycodone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. acetophenetidin, and 32 mg. caffeine.

Also available—for greater flexibility in dosage—PERCODAN[®]-DEMI: The PERCODAN formula with one-half the amount of salts of dihydrohydroxycodone and homatropine.

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LITERATURE AVAILABLE ON REQUEST

ENDO LABORATORIES
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*U.S. Patent Nos. 2,628,185 and 2,907,768

How do Filmtab[®] coated vitamins stack up?

Up until the moment we put the coatings on the Optilets[®] below, the tablets were all the same. Now, consider the differences.

The column on the left contains 125 Optilets with a conventional sugar coating.

The column on the right—125 Optilets with a Filmtab coating.

How do they stack up?

Well it's easy to see that the column on the right is much shorter. That's because the Filmtab coating cuts tablet bulk up to 30%. The result is a small, streamlined vitamin that's easy to swallow—the most compact tablet of its kind.

And when it comes to protecting potency (the main function of a coating), the Filmtab is in a class by itself. Sugar coatings, by their very nature, are aqueous solutions. Yet every measure must be taken to keep moisture out of the vital tablet core, necessitating "seal" coats which also increase bulk. The Filmtab operation, on the other hand, is essentially an anhydrous procedure. Seal coats are neither used nor needed. The chances of moisture being trapped inside the tablet are infinitesimal.

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Only the Abbott Filmtab offers so much in so little.



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DAYTEENS™ To help insure optimal nutrition in growing teenagers

Each Filmtab® represents:

Vitamin A.....	(5000 units)	1.5 mg.
Vitamin D.....	(1000 units)	25 mcg.
Thiamine Mononitrate (B ₁).....		2 mg.
Riboflavin (B ₂).....		2 mg.
Nicotinamide.....		20 mg.
Pyridoxine Hydrochloride.....		0.5 mg.
Cobalamin (Vitamin B ₁₂).....		2 mcg.
Calcium Pantothenate.....		5 mg.
Ascorbic Acid (C).....		50 mg.
Iron (as sulfate).....		10 mg.
Copper (as sulfate).....		0.15 mg.
Iodine (as calcium iodate).....		0.1 mg.
Manganese (as sulfate).....		0.05 mg.
Magnesium (as oxide).....		0.15 mg.
Calcium (as phosphate).....		250 mg.
Phosphorus (as calcium phosphate)....		193 mg.

In table bottles of 100, bottles of 250 & 1000

DAYALETS® Extra-potent maintenance formulas, ideal for the nutritionally "run-down"

Each Filmtab® represents:

Vitamin A.....	3 mg. (10,000 units)
Vitamin D.....	25 mcg. (1000 units)
Thiamine Mononitrate.....	5 mg.
Riboflavin.....	5 mg.
Nicotinamide.....	25 mg.
Pyridoxine Hydrochloride.....	2 mg.
Cobalamin (Vitamin B ₁₂).....	2 mcg.
Calcium Pantothenate.....	5 mg.
Ascorbic Acid.....	100 mg.

In table bottles of 100, bottles of 50, 250 & 1000

DAYALETS-M® Each Filmtab represents all the vitamins of Dayalets plus the following:

Iron (as sulfate).....	10 mg.
Copper (as sulfate).....	1 mg.
Iodine (as calcium iodate).....	0.15 mg.
Cobalt (as sulfate).....	0.1 mg.
Manganese (as sulfate).....	1 mg.
Magnesium (as oxide).....	5 mg.
Zinc (as sulfate).....	1.5 mg.
Molybdenum (as sodium molybdate)....	0.2 mg.

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...in attractive daily-reminder table-bottles

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OPTILETS® Therapeutic formulas for more severe deficiencies—illness, infection, etc.

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Vitamin A.....	7.5 mg. (25,000 units)
Vitamin D.....	25 mcg. (1000 units)
Thiamine Hydrochloride.....	10 mg.
Riboflavin.....	5 mg.
Nicotinamide.....	100 mg.
Pyridoxine Hydrochloride.....	5 mg.
Cobalamin (Vitamin B ₁₂).....	6 mcg.
Calcium Pantothenate.....	20 mg.
Ascorbic Acid.....	200 mg.

In table bottles of 30 & 100, bottles of 1000

OPTILETS-M® Each Filmtab represents all the vitamins of Optilets plus the following:

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Copper (as sulfate).....	1 mg.
Iodine (as calcium iodate).....	0.15 mg.
Cobalt (as sulfate).....	0.1 mg.
Manganese (as sulfate).....	1 mg.
Magnesium (as oxide).....	5 mg.
Zinc (as sulfate).....	1.5 mg.
Molybdenum (as sodium molybdate)....	0.2 mg.

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Each Filmtab® represents:

Thiamine Mononitrate.....	6 mg.
Riboflavin.....	6 mg.
Nicotinamide.....	30 mg.
Pyridoxine Hydrochloride.....	2.5 mg.
Cobalamin (Vitamin B ₁₂).....	2 mcg.
Calcium Pantothenate.....	10 mg.
Ascorbic Acid.....	150 mg.
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Liver Fraction 2, N.F.....	150 mg.
Brewer's Yeast Dried.....	150 mg.

In table bottles of 60, bottles of 100, 500 & 1000



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it may become more
than just a cold...



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TETRACYCLINE PHOSPHATE COMPLEX WITH PHENYLTOLOXAMINE AND APC

Only a single prescription provides:

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Capsule contains:

ANTIBIOTIC
TETREX (tetracycline phosphate complex
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ANALGESIC — ANTIPYRETIC
Aspirin150 mg.
Phenacetin120 mg.
Caffeine 30 mg.

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Dosage: Adults: 2 capsules 3 or 4 times a day for 3 to 5 days.
Children: 6 to 12 yrs.: One-half the adult dose.

Supplied: Bottles of 24 and 100 capsules.

According to a report by the Council on Drugs of the American Medical Association,* antibiotics may be administered for prophylaxis against secondary bacterial invaders in the following types of patients with influenza: pregnant women; debilitated infants; older individuals; patients being treated for other bacterial infections with chemotherapeutic agents, and patients with chronic, nonallergic respiratory disease.

*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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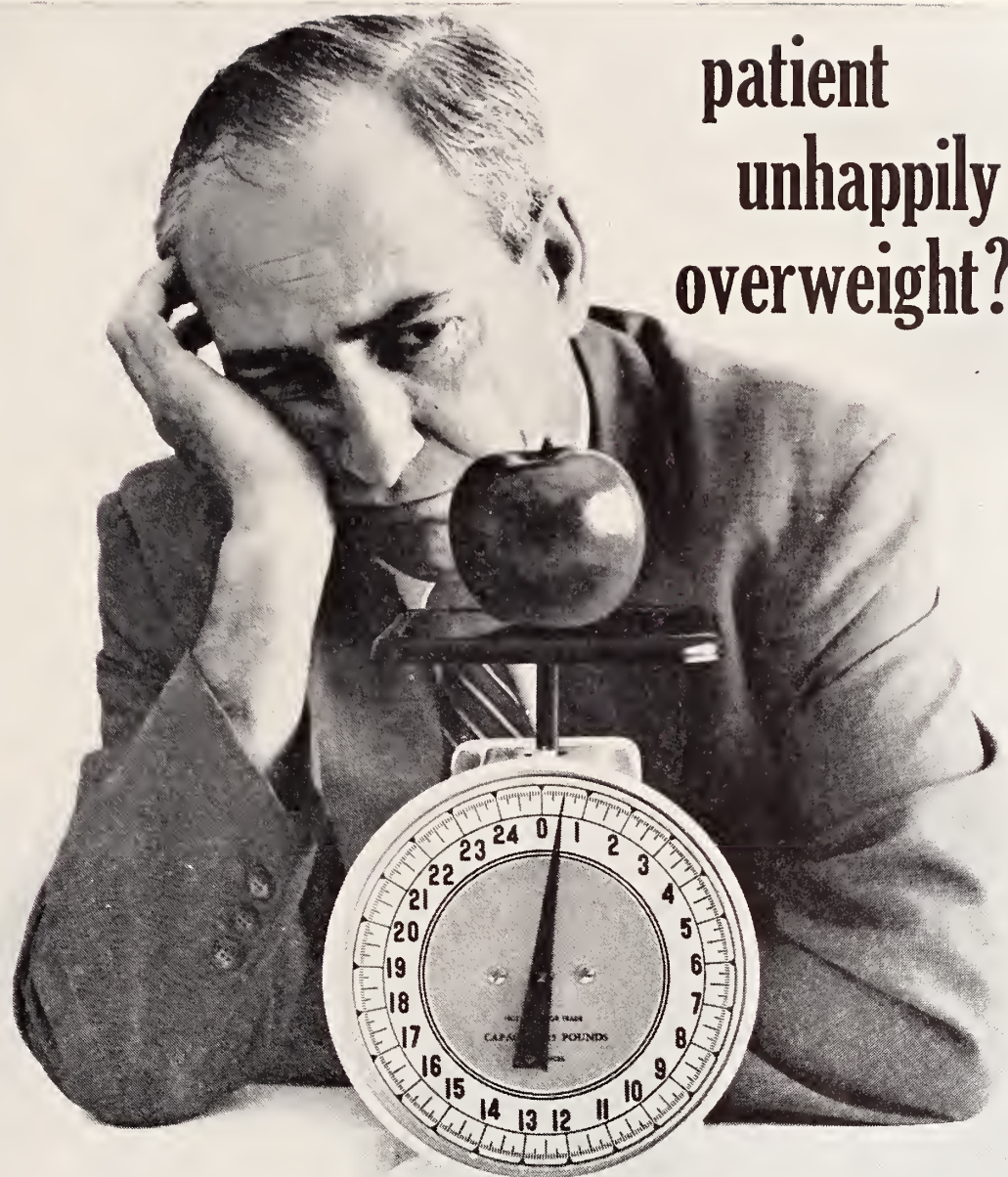
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¹ Douglas, H. S.: West. J. Surg. 59:238 (May) 1951.



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- No irritation for husband or wife



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Two planned pregnancies had also occurred after stopping the use of Emko.

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First Unsalted Margarine

Made from **100% Golden Corn Oil!**

- * Wonderful for sodium-restricted diets—10 mgs. of sodium per 100 grams!
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Fleischmann's Margarine was the first to make available the benefits of 100% corn oil with the lightly salted flavor preferred by so many.

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This new unsalted margarine has a light, fresh flavor your patients will find delicious. And because it contains no salt or other preservatives, it's Fresh-Frozen for flavor protection. You can be sure it's always fresh and pure.

Although this new margarine is Fresh-Frozen, the quarter in use may be kept in the refrigerator as any other spread. The remaining quarters should be stored in the freezer.

Recommend The One That's Best For Your Patient

If your patient needs sodium restriction or prefers the flavor of an unsalted table spread, recommend new Fleischmann's Sweet (Unsalted) Margarine. It comes in a *bright green* foil package in the grocer's frozen food case. Or, if you want your patient to use a corn oil margarine, and salt is no problem, then recommend lightly salted Fleischmann's Margarine. It's in the *golden* foil package in the refrigerated case.



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Arizona Medical Association Reports

Arizona Medicine

Vol. 18, No. 3



March, 1961

Board of Directors, Minutes
December 18, 1960, Meeting

Meeting of the Board of Directors of The Arizona Medical Association, Inc., held Sunday, December 18, 1960, Clarence E. Yount, Jr., M.D., (Vice President), Chairman, presiding.

ARIZONA STATE TUBERCULOSIS
SANATORIUM

Dermont W. Melick, M.D., Past-President (Phoenix) introduced the following physicians and hospital administrator appearing before this Board on invitation for the purpose of presenting their views associate with the proposed construction of a new Arizona State Tuberculosis Sanatorium:

Derrill B. Manley, M.D. (Phoenix), President, Maricopa Pediatric Society.

Stanford F. Farnsworth, M.D. (Phoenix), Director, Maricopa County Health Department.

Walter Brazie, M.D. (Kingman), Chairman, State Board of Health.

Clarence G. Salsbury, M.D. (Phoenix), Commissioner, State Department of Health.

Fred Payne, M.D. (Phoenix) Director of Communicable Diseases, Arizona State Department of Health.

Lloyd K. Swasey, M.D. (Phoenix), President, Medical Staff, Arizona State Tuberculosis Sanatorium.

Ben P. Frissell, M.D. (Phoenix), Chairman, Subcommittee on Public and School Health of the Professional Liaison Committee of the Association.

Anthony Garrick (Phoenix), Administrator, State Tuberculosis Sanatorium.

Doctor Melick opened the discussion, expressing the views of the Arizona State Health Department, being of the belief that the State Legislature is only awaiting a recommendation as to the need for a new tuberculosis hospital. It is estimated to provide for a 200-bed hospital consisting of 120 beds for adult care, 40 beds for pediatric care, 20 beds for diagnostic care and 20 beds for geriatrics, will cost up to \$3,250,000. This year the Legislature appropriated \$50,000 for planning. A sum of \$250,000 representing Federal monies has been promised for the first year, with an additional \$250,000 for the second year. Additional funds might be anticipated. He urged Association support in this project.

Doctors Manley and Swasey and Mr. Anthony Garrick presented facts and figures supporting the need for additional beds for the care of tuberculosis patients, including adult and child care, submitting to interrogation by the members of the Board. Following departure of the guests and due deliberation of the Board, the following action was taken.

It was regularly moved and unanimously carried that we (the Association) go on record approving the building of a new tuberculosis hospital or hospitals; and that we instruct our Legislative Committee to make it a very high priority health program in the next year.

EXECUTIVE COMMITTEE REPORT

Lindsay E. Beaton, M.D., President, and Chairman of the Executive Committee of the Board of Directors, reported the following actions taken by said Committee at a meeting held December 17, 1960:

DR. BEATON: Let me apologize for the late date at which this reaches you.
Legislative Committee:

(a) The Executive Committee voted to accept the recommendation that no action be taken with regard to trying to get a statute in the State of Arizona which would be like the California statute — protecting doctors who will stop and give first aid at the scene of an accident. Evidently such legal protection is not needed in this State; (b) We voted to accept the report that immediate information be promulgated to anyone who is using a fluoroscope in shoe fitting in either a department store or a shoe store, that this is against good health procedures, and secondly, that we support in general terms a bill which is going to be brought out by the Podiatrists making it illegal to use a fluoroscope for shoe fitting, because we don't want to be put in the position of backing a bill, the specific terms of which we do not know; (c) We accepted the advice that no attempt be made at the present time to pass for the State of Arizona a Uniform Hazardous Substances Act. As you know, Federal legislation has been passed under Public Law 86-613; this was backed by the AMA and we think we should see how this works on the federal and national level before we go to the enormous task of trying to pass one here; because there are so many parts of the Arizona statutes that govern poisonous substances, this

would be a major legislative effort; (d) We are advising Doctor Hamer of the Legislative Committee to contact Doctor McIntire of the Children's Colony about his enlargement of the Children's Colony, and branch operations in Phoenix and Tucson. Before we do anything in a legislative way to adopt Doctor McIntire's bill, we are asking Doctor Hamer to contact him and to get specific information; (e) We are advising the Legislative Committee to support any titles of a bill on ambulance emergency service having to do with purely medical matters. We feel that this would indicate our backing — first, for training of ambulance operators in first aid, etc., and second, for the provision of proper equipment in ambulances. We don't think that we should go on into other matters which have to do with functions that are really those of the Arizona Corporation Commission in regard to licensing, and so on; (f) We are noting the Legislative Committee's reaction, which is also the reaction of the ad hoc committee on the Medical Practice Act, that there is no need, contrary to what has been thought, to change the Medical Practice Act so as to specifically cover the care of mental illness as a part of the practice of medicine. When you read the definitions in the first section of the Medical Practice Act you'll find this is already covered; (g) We are taking no action at the present time on cancer registry legislation until we have information from other States, which is being collected, as to how their cancer registries have worked in such a way as to protect the names of people who are afflicted with the disease; (h) We are further awaiting information on Doctor Brayton's bill about cancer quacks. We have no specific information and we will have to wait until we get some before the Legislative Committee can be instructed to act; and (i) We are accepting the Legislative Committee's recommendation that we sponsor the amendment to Section 13-213, which you will remember is the section dealing with contraception and abortion, and this is going along with the action taken by the Board at its last meeting to delete that phrase which puts contraception in that part of the statute. The Executive Committee approved the Legislative Committee's report but recommends to the Board that the exact form of this be worked out as the legislative processes proceed.

There were two extra items that we considered under legislation. These had to do with:

(j) an intermediate institution for juvenile delinquents, and we understand that a bill is going to be proposed for the construction of such an institution. By "intermediate" is meant an institution somewhere between Fort Grant on the one hand, and the institutions like our Child Guidance Clinics in Phoenix and Tucson on the other. We recommend to the Board that if such an institution be approved by the Legislature, the Medical Association through its Legislative Committee go on record as stating that such an institution must be near Phoenix or Tucson. We are further instructing the sub-committee to investigate first, the need for such institution; second, the question as to whether private admissions as well as committed patients can go there; thirdly, whether all admissions must be through a Court, or whether there will be other forms of admission to such an institution, as we feel an intermediate institution of this sort may be needed in the State and should not merely be a Court adjunct, which would be a mental institution; and (k) we are going to recommend that what I will call for the purposes of abbreviation, a Schwartzmann proposal, be seriously considered by the Legislative Committee as proposed legislation for this year. Now the Schwartzmann proposal in brief is a proposal for the care of the medically indigent in this State. This comes about through our instruction to the Professional Committee to prepare some kind of implementation on a State level of the provisions of the Kerr-Mills Bill. You will remember that the State Board of Public Welfare, meeting in Tucson last month, decided that it would do nothing to implement in this State the Kerr-Mills Bill; since AMA and this Association are both on record as wishing to provide some kind of State implementation of the Kerr-Mills Bill, we instructed the Professional Committee to look into some way of doing this. Now, this is very roughly Doctor Schwartzmann's proposal: at the present time Health & Welfare and County medical expenditures for the indigent amount to \$9 million a year in the State of Arizona. In addition, the State Department of Health & Welfare has an additional \$2 million that it spends; not all, of course, are health matters. So this means that the State of Arizona now spends \$11 million a year on the care of its indigents, and there are 84,000 people in the State of Arizona over the age of 65, 14,000 of whom are on Old Age Assistance. There are 50,000 indigents of

all ages; this includes the 14,000 who are on Old Age Assistance. It is Doctor Schwartzmann's proposal that insurance be underwritten with the money that is now being spent for various kinds of health care for the indigent — not just the aged indigent, but all indigents, and he states that this could be worked out in such a way as to cover the Federal requirements in the Kerr-Mills compromise. What he would do, in brief, is to pass legislation which would divest the Counties of all responsibility for the care of the indigents. This would mean, eventually, the abolition of County hospitals. The law would then centralize in a State agency, presumably with some kind of strong representation from the State Medical Association, the function of caring for the indigent. It would provide, eventually, through health insurance, that all indigent patients would be cared for by private physicians in private hospitals; it would of course require the acceptance by the physicians of the State of some kind of a fee schedule basis that would allow the care within the budgetary requirements. He assures me that medical care of the aged under this proposal would qualify the State for the reception of medical care funds from the Federal Government under the provisions of the Kerr-Mills Bill. In summary, Doctor Schwartzmann says this would remove responsibility from the counties; that it would centralize the care of all indigent aged under a single agency; that it would provide a vendor insurance type of payment; and that it would provide private physician care for the indigent and the free choice of physician.

Now, your Executive Committee feels that this is a good, albeit long, proposal for the care of the indigent in this State. We feel that it has advantages that are met by no other proposal that we know of. We do feel, however, it might be necessary, even if we do propose such legislation, for the Legislative Committee to keep in mind the necessity of having some short-term alternative to meet the current needs of the Kerr-Mills Bill this year, for the following obvious reasons, which I am sure is present AMA thinking: that if we do not do something right now, and if the new Congress that meets is not made to see that Arizona, like the other States, will do something to implement the Kerr-Mills Bill, it will be very likely that the new Congress will pass Forand-type legislation. So that we

think there is a good deal of urgency about getting legislation before our Legislature, which will not only be a long-term program, but also that will have some short-term proposal that will enable us to meet the Kerr-Mills Bill needs. Not only that it's good legislation, but that it will save us from the unhappy necessity of working under a Forand-type Social Security Bill.

Now, there is a digest of a very immense amount of work, but we do recommend that the Legislative Committee work on setting up such a proposal for presentation to the Legislature. The State Board of Public Welfare is not going to do it.

It was regularly moved and carried that we accept the report of the Legislative Committee, including the recommendations of the Professional Committee dealing with implementation of the Kerr-Mills Bill under the "Schwartzmann" plan.

Woman's Auxiliary: Nurse Scholarship Loan Fund.

Mrs. Cummings, the President of the Woman's Auxiliary, asked for more leeway for the Auxiliary and the disposition of a Nurse Loan Scholarship Fund, and we voted to approve this. She would like to have permission to try loans—not only to the diploma schools, that is, to the schools of nursing in hospitals, but also to the two-year program at Phoenix College, the collegiate programs at both of the universities, and even on a pure gift, not a loan, basis to most graduates — girls who might want to go into some kind of postgraduate nursing, and also for the future perhaps even for licensed practical nurses. At the present time the loan fund is limited to the three-year diploma schools. We passed a motion that more leeway be given within the limits set by Mrs. Cummings, but that the nurse loan scholarship fund was to stay in the nursing field and not to go into any other paramedical groups.

Mrs. Cummings told us the Woman's Auxiliary is not this year sponsoring the essay contest of the AAPS.

It was regularly moved and unanimously carried that we approve expenditure of such funds for scholarships within the general nursing field, provided that such expenditures are made with the approval of the Nursing Scholarship Loan Fund Committee of the Woman's Auxiliary.

Administrative:

(a) We received the monthly financial reports for October and November, reviewed and accepted them. These monthly reports will not be detailed to the Board but any member of the Board can see them at any time they wish. We felt that it was not worthwhile going over the details of each month's financial operations by the full Board, but we reviewed them in detail.

Benevolent and Loan Fund:

(a) We approved a recommendation of the Benevolent and Loan Fund Committee, and this recommends a change of our charitable contribution to medical education in the United States from AMEF to our Benevolent and Loan Fund. This would be done by resolution at the House of Delegates from the Benevolent and Loan Fund Committee. In other words, this would say that either the whole or a part of our AMEF contribution of \$10 per person would be diverted to our Benevolent and Loan Fund. We're trying to build up our fund so that we can lend money to Arizona residents who are going into medicine; we'll have to do it in some way and this is one possible way to build it up — possibly for the House of Delegates to do this; (b) we approved a report made by Preston Brown on the situation; and (c) we approved a letter which is being sent out to the members acquainting them with this problem and asking their co-operation in conferring with patients, pharmaceutical societies, etc. to get money for the Benevolent and Loan Fund.

Medicare Contract:

We approved the signing of an additional supplemental agreement to the Medicare Contract — this was purely an Administrative matter.

Professional Committee:

We approved the following actions of the Professional Committee: (a) Refer the Youngtown request for physician care to the Medical Economics Committee and to the subcommittee on Insurance for some kind of plan that would meet their needs; (b) Refer the problem of press coverage, the question of newspaper, magazine advertisements and articles, the speaker's bureau and so on, with the general idea of getting a better public press for Medicine, to the Public Relations Committee; (c) The possible use of the Auxiliary to distribute material to doctors' offices was included in this recommendation.

(d) At the time of the next meeting, Doctor Smith will be present to give the Executive Committee's point of view on the kind of public health program we want. We have had some very noble platitudes from the Public Relations Committee but we have had no concrete plan of what they want to do, and this motion is to get them to stir off their laurels. (c) The next item came from the resolution of the State of Virginia, the policies of the Joint Commission on Accreditation of Hospitals. We are asking the Professional Committee again to prepare a resolution to the House of Delegates on the Arizona feeling about the Joint Commission on Accreditation of Hospitals. Two years ago we prepared such a resolution, it was sent to the House of Delegates of AMA, it was changed; (f) The Professional Committee asked that some action be taken about the venereal disease rate in Arizona, but they made no specific recommendations, and therefore the Executive Committee has advised Arizona Medicine to publish an article informing the physicians of their obligation to report cases of venereal disease. One of the reasons that we think this is important is that Santa Cruz County reports no cases of VD month after month. Secondly, our Central Office will ask Doctor Salsbury in what way the Association and the doctors of Arizona can co-operate to do something to lower this VD rate; (g) We are also asking *Arizona Medicine* to publish an article to be prepared by the Arizona Radiological Society on the question of the need for skin tests in the intravenous use of contrast materials, the use of an intravenous injection of a cc. contrast material before the injection of the whole amount. This arose because the Arizona Radiological Society advised that this was no longer a proper thing since these materials are salts, they are not proteins, there is no allergic response available that can take place, and yet the materials themselves always come with a statement to do a skin test; and (h) Informed the Professional Committee in response to an appeal that the Principle of Ethics of the AMA be embodied in the Medical Practice Act, that the Medical Practice Act already contains as practical definition of ethics as is legally possible in the first section; it states that any person who applies for a license in this State must meet reasonable medical ethics. We feel it would not be possible to do as the Professional Committee would like — to append the AMA's ethical rules

to the Act.

Professional Liaison Committee:

Going to the Professional Liaison Committee: (a) We approved the recommendation that the Podiatrists may give a scientific exhibit at either County or State medical meetings. (b) We approved the format for Career Nights at the universities and at the high schools. This fulfills the recent AMA resolution No. 41 with regard to indoctrination of high school students about medicine. We also advised the Professional Liaison Committee to consider the use of the Auxiliary, which already has a very elaborate Career Night, Medical and Paramedical program, in the high schools, and we asked for an immediate report as to the concrete plans that they had, what nights they're setting up at the universities, etc.; and we finally asked that they consider the workshop method which worked out so very well at the universities for the Engineering Career Nights; (c) We took no action on a recommendation that we stand strongly against the proposal that public health certification be deleted as a requirement for teaching in the Arizona schools; (d) We advised that the Professional Liaison Committee contact Doctor McIntire of the Children's Colony about the question of setting up a Medical Advisory Committee for that Colony.

Publishing Committee:

We advised that in the future, through Mr. Boykin and the Secretary of the Association, meaning at the present time Doctor Smith who is Acting Secretary, that any question of possible libelous material that appears in committee reports will be held up for Executive Committee review before being published. We have recently had some remarks which I think are perfectly true but were felt possibly to be libelous, and we are going to hold it up for Executive Committee review — anything that Mr. Boykin picks up when he goes over the material and refers to Doctor Smith. (e) We voted to subscribe as an Association to the Better Business Bureau of Maricopa County, not because we are supporting the Better Business Bureau per se, but because we felt that the information we obtain from them about quacks and charlatans and other people is very valuable to us, and we voted this subscription.

Medicine and Surgery Act:

We approved the report of the ad hoc com-

mittee of the Board of Medical Examiners. This ad hoc committee has in essence approved the changes that we approved at our last Board meeting — four changes plus one other which dealt with licensure of full-time house staff physicians employed.

Membership Changes:

We approved membership classification changes for MURL EDMUND FULK, M.D. (Maricopa County Medical Society), approved membership designation change to "Active", dues exempt, account 70 years of age, effective January 1, 1961; ARTHUR C. CARLSON, M.D. (Maricopa County Medical Society), elevated to "Fifty-Year Club" membership on recommendation of the Society, effective in 1961; ALBERT J. HARRIS, M.D. (Gila County Medical Society), approved membership designation change to "Associate", dues exempt, effective January 1, 1961, account residency training; HUGH H. SMITH, M.D. (Pima County Medical Society), approved membership designation change to "Affiliate", dues exempt, effective January 1, 1961, account engaged in teaching at the University of Arizona.

Miscellaneous:

(a) We had a resolution from the Washington State Medical Society opposing prepaid provisions for the payment of blood transfusions. They said that there should be no setup in which you could prepay on the provision for blood; they felt this should be disapproved of. We disapproved this; said we would notify Washington State of our disapproval; and that we would notify our delegates to the AMA to vote against this resolution when it's presented at the AMA; (b) We instructed the Public Relations Committee to prepare a letter to the County Societies on the procedure for the nomination of candidates for the reception of the A. L. Robins Community Service Award plaque; then to be presented to the Board of Directors for final selection prior to the annual meeting; (c) Just for your information, in case you haven't seen it, twenty-six physicians in Arizona were recently presented the medallions of merit on the 75th anniversary of the founding of the University of Arizona. These are all physicians in the State who have practiced forty years or more, plus all presidents of the Association who are also Alumni of the University, and since Doctor Melick had already received such medallion, Doctor Bill

Manning got his medallion recently; (d) The Osteopaths have sent a letter to us telling that they have disapproved the credit idea to members of the Osteopathic Association, and on motion of Doctor Smith the Board voted to send a letter of commendation and pleasure to the Osteopaths for this action; (e) We instructed our Counsel, Mr. Edward Jacobson, to contact the new Attorney General and set up a meeting with regard to the possibility of the Board of Medical Examiners having a lawyer who would be able to work together with the Medical Association in the implementation of matters of joint concern; in other words, we would like to get Mr. Pickrell to appoint a good attorney to work with the Board of Medical Examiners, not just to appoint some person without much experience, out of the ranks of his younger associates, and at this meeting some officer of the Association will be present, together with some members of the Board of Medical Examiners to see what we can work out. Mr. Pickrell is reported as being favorable to some such arrangement; (f) We have approved the writing of a letter to the Arizona Republic expressing the Association's pleasure at the recent articles by Mr. Bernie Wynn on the dangers of hypnosis and commending the Arizona Republic for its public interest in Medicine as manifested by the preparation of these articles. We thought they were very good; and (g) We voted a letter of appreciation to be sent to the American Association of Medical Assistants for their resolution opposing Forand-type legislation.

That concludes, Mr. Chairman, the report of the Executive Committee on actions taken, and I would like to move the acceptance of this report.

It was regularly moved and unanimously carried that this motion be amended in that we do not approve of the chiropractors exhibiting at the annual State or County Medical Society meetings; further, that chiropractic ads be not accepted for publication in *Arizona Medicine Journal*, all current contracts in force to terminate on the expiration date.

A motion further amending the motion on the floor to the effect that no official action be taken commending the Osteopathic Society for its stand in opposing "credit card" payment for professional services rendered was lost by one vote.

On roll call, the motion to accept the report

of the Executive Committee, as amended, was carried.

OTHER BUSINESS

Press Releases

It was moved by Doctor Smith, seconded by Doctor Reed and unanimously carried that release of all information to the Press, especially as pertains to health care legislation, be the prerogative of the President of the Association until April 27th next.

Advisory Survey and Construction Council

Approved the nominations of the President: William B. Steen, M.D. (Tucson, incumbent; Arnold H. Dysterheft, M.D. (McNary); Joseph P. McNally, M.D. (Prescott), and Dermont W. Melick, M.D. (Phoenix), to be filed with the Governor who will appoint or reappoint therefrom one to serve as a member of the Advisory Survey and Construction Council (Chapter 10, Hospital Survey, Construction and Districts, Article I, Survey and Construction, Section 36-1203 A.R.S. 1956) effective January 1, 1961, for a term of four (4) years.

Ad Hoc Ministerial Liaison Committee

Approved the recommendation of the President that Derrill B. Manley, M.D. (Phoenix) at his request, be removed from the chairmanship of the ad hoc Ministerial Liaison Committee, continuing as a member, and reassignment of the chairmanship to Philip G. Derickson, M.D. (Tucson), a member previously appointed, including also James D. Barger, M.D. (Phoenix) and Leo L. Tuveson, M.D. (Phoenix).

AMA Dues Increase

DR. BEATON: The only other item is one brief report I have to give concerning the question of the AMA dues increase. As I understand, the House of Delegates voted a \$20 increase, the first \$10 to go into effect in 1962 and the second \$10 in 1963, but this is not to be finally voted on until the June meeting. So this gives six months for the delegates to sound out their State Associations on this, and the Executive Committee took no action and felt they would like to have the Board of Directors' idea on an increase in dues.

May I suggest that, since we have until after our annual meeting to come to any final decision as an Association about this, we not make up our minds as a Board of Directors at the present time, but that rather we inform each County Medical Society of this, perhaps through the

Secretary of the Society, and ask that discussion be carried out in each County Society so that the delegates will come to our annual meeting informed about it and ready to put the Association on official record after careful consideration as to the advisability of a dues increase for the purposes listed.

It was moved by Doctor Beaton, seconded by Doctor Smith and unanimously carried that the County Medical Societies be advised through their Secretaries of the question of an increase in AMA dues and be asked to hold discussions of this question in County Society meetings prior to the House of Delegates' meeting next April, and to prepare such resolutions as they may think would best represent the opinion of their local County Medical Society membership.

Arizona Medicine — Editorials

DR. BEATON: Mr. Chairman, this finishes the Executive Committee work. I have two other matters of information I would like to briefly bring before the Board. First, there has been some discussion among us as to the question of how much the editorials in *Arizona Medicine* should be taken as representing the official opinion of this Association. There is no way now in which the editorials reflect, for example, actions taken by this Board of Directors, and so on. They are merely articles written by various members of the Publishing Committee or by the person selected by the Editor, and there is a feeling among a number of us that while it's a perfectly proper place in *Arizona Medicine* for expressions of opinion by anyone, that official editorials on an editorial page should reflect the opinion of the Board of Directors and the official opinion of the Association. I do not wish to ask any action on this at the present time, but merely to inform you that this will be on the agenda of the next Executive Committee meeting to which the Editor himself will be invited so that we can thrash this thing out. I did not want to make any decision about it without him here to defend what they've been doing, but I think a number of us think that this is important.

Crippled Children

Doctor Running reported on the appointment of a separate new board for crippled children's services divorced from Welfare.

Lorel A. Stapley, M.D., Secretary
By Leslie B. Smith, M.D., President-elect
Acting Secretary



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1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.

2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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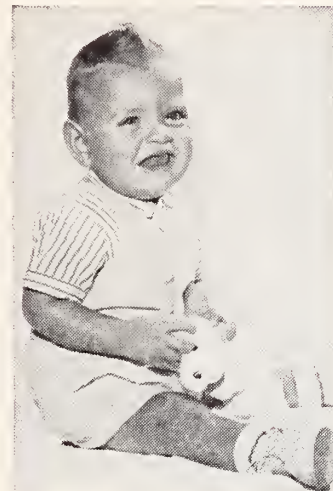
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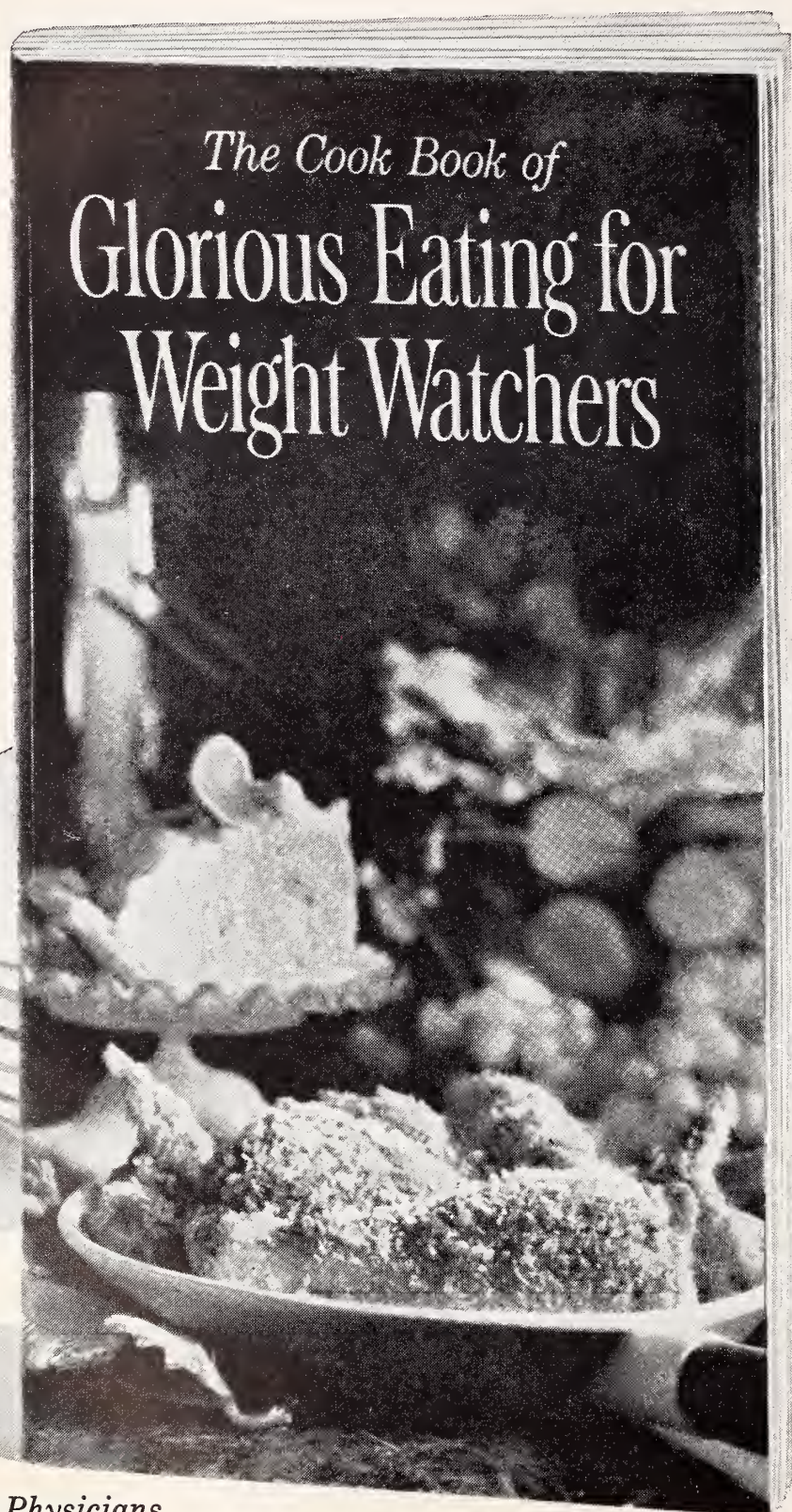


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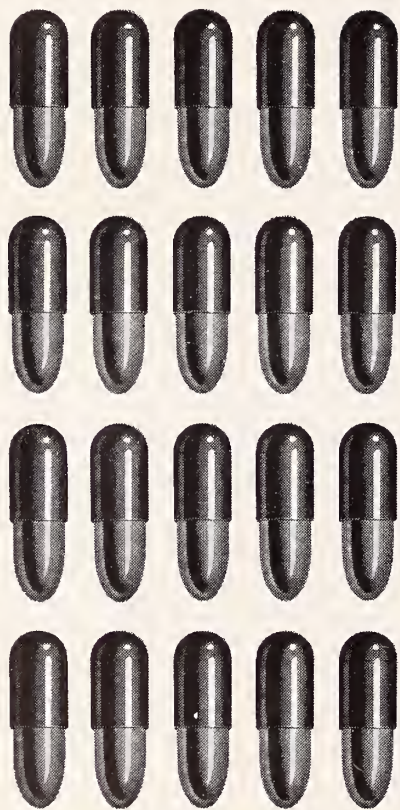
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Transfusion Therapy in the Emergency Treatment of Secondary Shock

John B. Alsever, M.D.

The following article is a concise, up-to-date and authoritative presentation of the use of blood, blood fractions and blood substitutes in emergency treatment of shock. The author emphasizes the safety of stored plasma and cautions against the use of "universal donor" whole blood under peace time conditions.

OUR KNOWLEDGE that depletion of circulating blood volume is the fundamental problem in secondary shock and that replacement of this lost fluid is the only effective therapy goes back to the pre-blood bank days of medicine, when blood transfusion was a major surgical procedure and treatment had to be largely based on the use of intravenous electrolyte solutions. Our knowledge and understanding of shock today is far more complete and detailed and, along with this, our ability to treat it effectively is also vastly improved by the ready availability of better therapeutic agents through blood banking.

Let us review briefly the basic knowledge concerning secondary shock and then consider current knowledge regarding the safest and most effective methods of treatment. Figure 1 shows in outline form the salient details concerning the physiological, pathological, and etiological problems encountered in the clinical condition of shock. We are here concerned only with secondary shock, in which one or more of the follow-

ing factors may be involved: loss of body water, blood plasma, or whole blood, and the effect of toxic substances released by tissue breakdown or bacteria. Factors resulting in the loss of plasma or whole blood internally or externally are usually apparent in sizing up a patient. However, the internal plasma loss that occurs because of severe dehydration or because of the release of toxic products from tissue breakdown or bacterial invasion often is not too readily discerned in the initial patient evaluation. Shock resulting from certain of these factors has been identified with specific diseases or injuries, such as: the water and plasma loss which occurs in severe dehydration and acute, severe diarrhea; plasma loss, with usually minor red cell loss, as seen in external burns, intestinal obstruction and "crush" injuries; and primary whole blood loss which is characteristic of massive hemorrhage or of tissue injury, with lesser degrees of blood loss, as seen in surgical trauma and accidental trauma. The release of toxic products may further complicate any of these situations, to the point of becoming a major factor in the clinical problem.

Presented before the Arizona Medical Association May 7, 1960, Scottsdale, Arizona.
Medical Director, Southwest Blood Banks, Inc., Phoenix, Arizona.

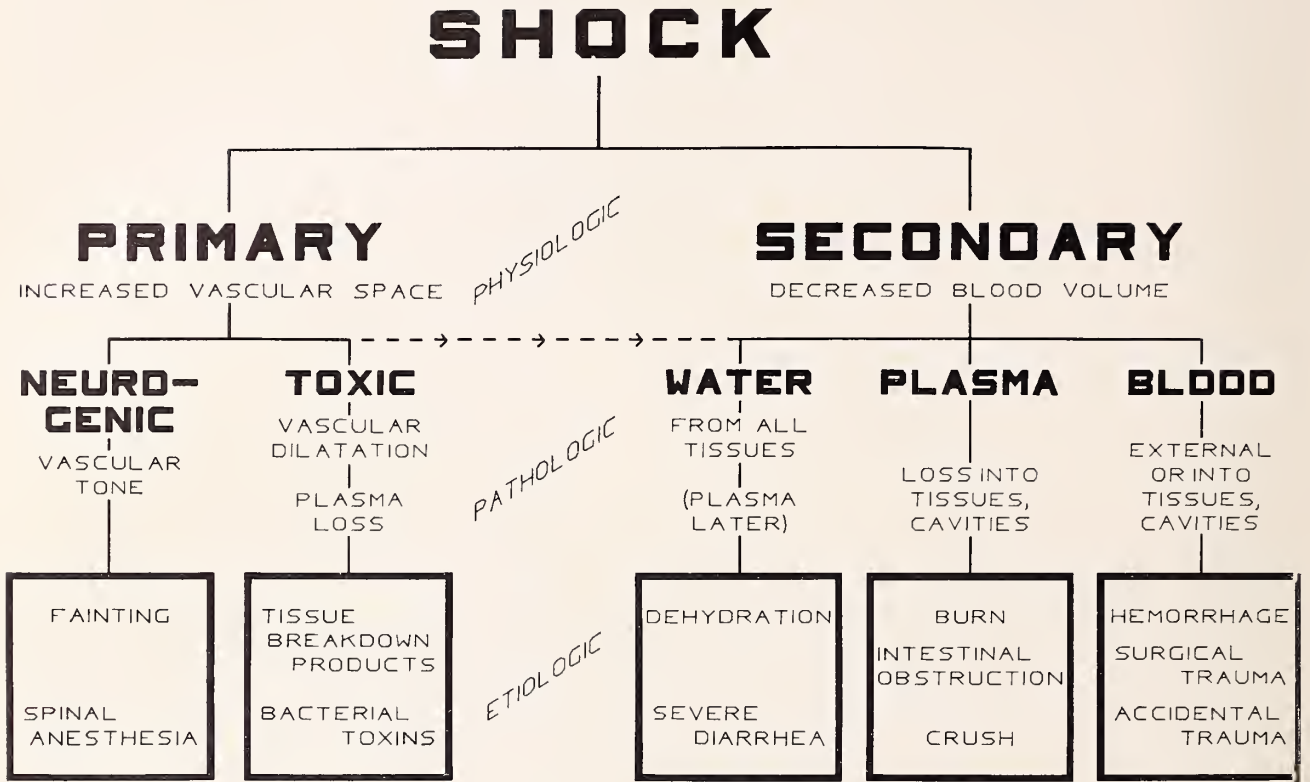


Figure 1

Secondary shock, then, is unequivocally due to a significant depletion of circulating blood volume resulting from one or more of the factors just reviewed. The chain of events which follows a significant loss of blood volume is well known. There occurs, initially, a fall in venous pressure which results in inadequate venous return to the heart and a diminishing cardiac output. This produces a falling peripheral blood pressure and eventually an inadequate circulation in spite of reflex vasoconstriction, resulting in tissue anoxia, lethargy, coma, and finally in death if the cycle cannot be interrupted and reversed. Also well known is the fact that shock becomes irreversible after a certain point, which is determined both by the severity of the decrease in blood volume and by the duration of the condition.

In considering therapy, the only effective remedy is prompt and adequate replacement of the blood volume deficit which permits the restoration of an adequate circulation for tissue metabolism. Adequate replacement is possible only through the use of an agent which remains in the circulation more or less permanently;

ideally; either whole blood, blood plasma, or serum albumin, and, definitely second best, a plasma substitute. Most commonly, from a clinical point of view, the problem is primarily the result of the acute loss of whole blood, blood plasma, or, in certain situations, some of both. For convenience, these can be characterized for the purpose of this discussion as Hemorrhagic Shock and Burn Shock, and, for the moment, we will consider only the two "natural" therapeutic agents: whole blood and blood plasma.

Figure 2, Hemorrhagic Shock, and Figure 3, Burn Shock, illustrate these two situations when treated with the two agents named. In both instances, the left-hand column represents the normal. The next column shows the situation after the loss of 30% of blood volume, sufficient to result in severe secondary shock. In Figure 2, Hemorrhagic Shock, this loss is of whole blood with, initially, normal proportions of cells and plasma remaining. Hemodilution, of course, follows as the body tries to repair the damage. The last three columns show the effect of restoration of normal blood volume: in column 3, with

HEMORRHAGIC SHOCK

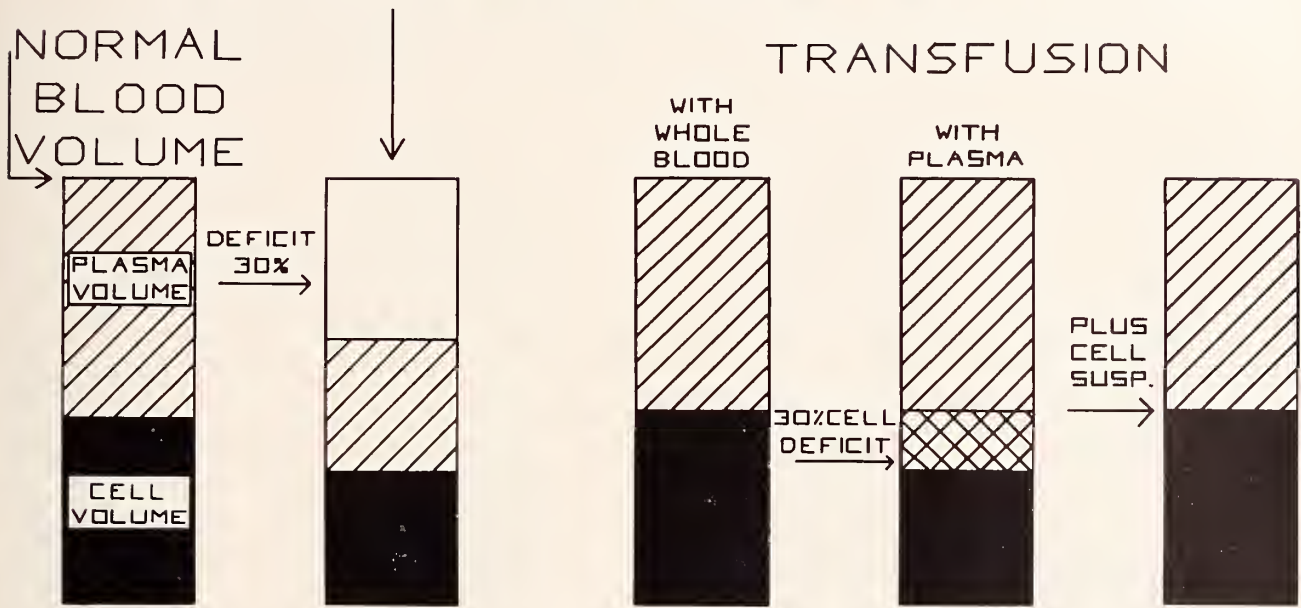


Figure 2

whole blood, which is physiologically ideal; in column 4, with plasma, which is also ideal except that an anemia then exists; and in column 5 we see that the anemia remaining after emergency plasma therapy may be corrected subsequently by the use of packed red cells. However, most commonly treatment, if begun with plasma, is completed with whole blood. It must be emphasized that the anemia existing following the immediate, life saving restoration of blood volume with plasma in hemorrhagic shock is only *most rarely* severe enough to critically impair the normal exchange of oxygen and carbon dioxide.

In Figure 3, Burn Shock, the loss is almost entirely of plasma — the slight red cell deficit which occurs is not in any way contributory to the initial shock, nor does it impair initial recovery. Parenthetically, a 30% loss in blood volume should result from about a 20-25% body surface burn. The last two columns show the effect of restoration of the normal volume: in column 3, with plasma, which is physiologically ideal — in spite of the mild anemia present after initial recovery; and in column 4, with whole blood, which is *not* physiologically ideal at all because it invariably results in a significant ele-

vation of the hematocrit. In severe burn cases, this often produces clinically important polycythemia with increased blood viscosity.

Now we must evaluate the available therapeutic agents as to: 1) their relative safety, 2) their ready availability, and 3) their effectiveness.

A. *Whole Blood* is relatively safe if properly and carefully crossmatched, it is ordinarily reasonably available, and is entirely effective. However, the use of blood in the emergency treatment of shock is all too often considered an adequate reason to give low-titer Group O blood at once and without crossmatching. Since no available techniques will eliminate all such bloods with potentially dangerous isoagglutinins, there is some degree of danger from an incompatible ABO reaction, and there are a few such cases on record. Furthermore, the patient may have been immunized previously to some other blood factor, and this can also result in a serious incompatible reaction. The transfusion of compatible blood may also produce a blood group sensitization in the patient. This is not preventable and will cause problems in future transfusions. Finally, there is the ever-present in-

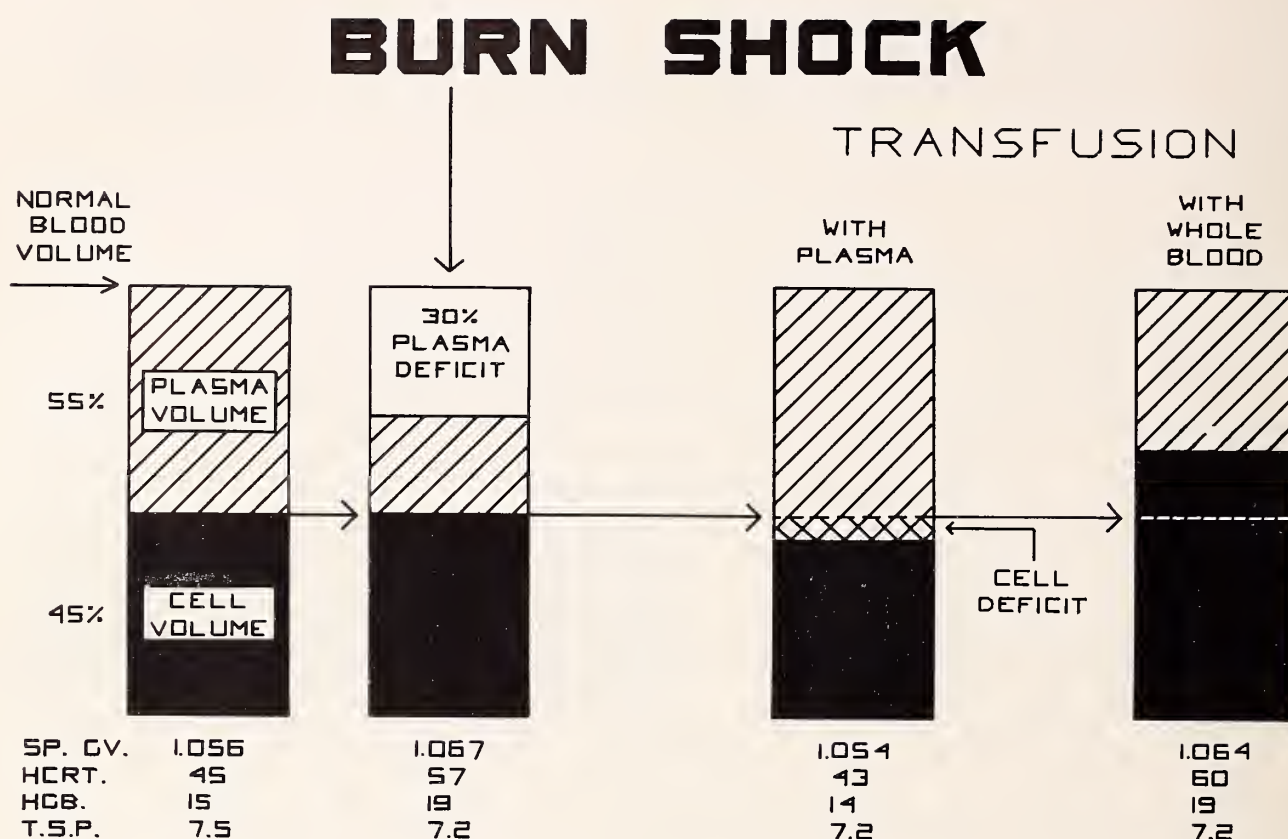


Figure 3

herent risk of transmitting viral hepatitis. As to availability, this of course depends entirely upon the facilities for storage of blood which are available at the place of treatment, together with the supply on hand. Otherwise, the blood needed must be shipped in from the closest blood bank. Whole blood, of course, will always be clinically effective, but carries with it the risks which have been presented.

B. *Blood Plasma* is much safer than whole blood, it is effective clinically in the emergency situation, and can always be immediately available. Not only is it just as satisfactory as whole blood in the emergency treatment of shock, but, in severe hemorrhagic shock, its immediate use also provides the needed time to obtain blood and carry out a careful crossmatch. Plasma does not need to be crossmatched. There are no problems of incompatibility or of sensitization of the patient. Since liquid plasma is stored at room temperature, with permissible extremes of about 50° to 100°F., it can be stocked in all areas where emergency treatment usually occurs: the emergency room, surgery, and in ambulances if desired. It could also be carried in the phy-

sician's car provided it was not allowed to remain there too long when ambient temperatures were extreme. The only deterrent to its use has been the high incidence of serum hepatitis transmission.

Plasma, of course, was widely used for shock treatment and was very effective and popular during World War II. The problem of a high incidence of the transmission of serum hepatitis from plasma had become evident at the close of the war, and its use naturally was sharply curtailed in favor of whole blood. This problem was emphasized further during the Korean conflict as it became apparent that ultraviolet irradiation, which had been experimentally effective, was not in fact killing the virus. As a result, the use of plasma essentially ceased in this country.

It has been established during the past year and one-half that the virus can be and is killed by prolonged storage of the plasma under definite time and temperature relationships. Actually, this appeared to be evident in the experience of several of the larger blood banks, including Southwest Blood Banks, as long as

six to eight years ago. Although none of these banks had been able to carry out the necessary six-month follow-up studies of patients receiving plasma, the complete absence of reports of hepatitis in these patients, together with the continuing occurrence of hepatitis following whole blood, was considered to be significant negative evidence that storage of the plasma at room temperature for one year was inactivating the virus of hepatitis. Liquid plasma available from Southwest Blood Banks has been prepared in this manner for several years. Over 5,000 units have been used since 1954 without any evidence of hepatitis or other adverse reaction in the recipients.

Now, we have adequate positive evidence of this preliminary observation and the case for "safe" plasma is complete. Hoxworth(1) has published several articles concerning his studies. His last article contains the final report of the six-month follow-up studies of patients receiving both plasma and whole blood. There were no cases of hepatitis in 317 followed recipients of plasma, while there were six cases of hepatitis in 674 followed patients receiving whole blood alone or both blood and plasma. The plasma used in the study was stored for six months at temperatures of 72° to 95° F., averaging 80.6° F. over the period of storage. The other study was reported by Sayman and Allen(2) and details similar findings. Three hundred and five patients who received only plasma were followed for six months with no evidence of hepatitis; in 2,547 patients receiving both plasma and blood or blood only, there were 57 cases of hepatitis found during the follow-up period. The plasma was stored for six months at temperatures of 76° to 96° F., averaging 89° F., during the study. The statistical analysis which forms part of both of these studies makes the conclusion inescapable that the cases of hepatitis which were found were transmitted by whole blood and that properly treated plasma was entirely safe. Although our experience leaves us no doubt concerning the efficacy of a longer storage period at a lower temperature (one year at 72°-78° F.), we, like others, have changed to a six-month storage period at a constant temperature range of 89° to 93° F. There is no longer any room to question the safety of properly prepared plasma.

C. *Serum Albumin* has all the advantages in

safety and effectiveness that have been described for plasma. However, it is available only from commercial firms in limited amounts, the cost is quite high, and the standard preparation is five times as concentrated osmotically as blood or plasma. Therefore, it is often necessary to give intravenous electrolytes at the same time, and its use can result in a very rapid increase in blood pressure with renewed bleeding from injured tissues.

D. Two modern *Plasma Substitutes* became available for trial in this country following the war. The first, Polyvinylpyrrolidone, was used by the Germans during World War II with apparent success. However, subsequent studies in this country showed that over 50% of the amount injected is rather quickly stored in the body tissues, where it remains for years, while the rest is rather rapidly excreted by the kidneys. These findings resulted in the decision to employ it only as a last resort, because the effect of its long-term storage in body tissue cells is unknown. The second substitute, Dextran, was developed in Sweden and has for some time now been produced in this country and is available on the market. However, it has two very real drawbacks: 1) a rapid excretion rate through the kidneys, which begins at once, so that the dosage must be repeated at least every 10-12 hours to maintain the necessary clinical effect until sufficient time has elapsed for the patient to re-establish his own circulatory equilibrium; and, 2) if it is used in amounts exceeding 1,000 ml., which is inadequate in severe shock, the development of a bleeding tendency of long duration is quite common, due presumably to the characteristic coating of all cellular blood elements, which occurs with the use of all macromolecular substances. In the case of Dextran, this evidently impairs an essential step in the mechanism of blood coagulation. Thus, the rating of plasma substitutes in terms of effectiveness and safety is rather poor compared to plasma.

In summary, the problems presented by secondary shock physiologically, pathologically, and etiologically have been reviewed briefly. The emergency treatment of shock with whole blood, blood plasma, serum albumin, and plasma substitutes has been discussed from the point of view of their relative safety, effectiveness, and availability.

Liquid plasma is the agent of choice for the emergency (immediate) treatment of secondary shock. Plasma is completely effective, readily available, and, now that the danger of the transmission of viral hepatitis has been controlled, the safest therapeutic agent. Serum albumin is an alternate first choice, but it is expensive and has limited availability. Whole blood is definitely second in line of preference for immediate treatment, even when the major problem is whole blood loss, since it should be used only after careful crossmatching. The use of low-titer, Group O

blood without crossmatch is not recommended in the emergency treatment of shock. Unless neither plasma, albumin, or crossmatched whole blood can be made available, plasma substitutes are a poor third choice because of their relatively short period of effectiveness and their potential untoward side effects.

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DROP TECHNIQUE FOR CYTOLOGY

Modified drop technique; preparation of smears for automatic, electronic scanning. William B. Courtney, M.D., Albert W. Hilberg, M.D., Samuel C. Ingraham II, M.D., Raymond F. Kaiser, M.D., and Mary M. Bouser, R.N., Field Investigations and Demonstrations Branch, National Cancer Institute, Bethesda, Maryland, *J. Nat. Cancer Inst.* 25:703-711, 1960.

A modified application of the "drop technique" for cytology and its desirability for automatic, electronic scanning are discussed. Vaginal pool aspirates like all cytological specimens frequently have sparsely populated cellular material, and when the Cytoanalyzer is used, an optimum sampling of well-prepared specimens is desirable. Specimens are obtained by aspiration from the posterior vaginal fornix and suspended in 75 percent ethanol for fixation. This suspension is poured through a fine sieve and centrifuged; the supernatant is removed, the cellular material is diluted to a known density, and a known quantity of the specimen is dropped on a slide and spread over a previously defined area with the tip of the pipette. Feulgen staining is used to obtain a nuclear stain of medium intensity with minimal staining of the cytoplasm. A cover-slip is mounted with Permunt and the slide is ready for automatic scanning. Processing by this method provides an adequate control of the number, spacing, and distribution of cells in the smear without distorting their morphological characteristics.

Idiopathic Hypoparathyroidism: A Review and Case Report

Howard E. Liston, M.D.

The author presents a carefully documented case report of a relatively rare disease. Pertinent literature is well reviewed under the several sections of his discussion.

THE METABOLIC changes in the hypoparathyroid state, whether due to surgical destruction of the parathyroid glands or to an idiopathic phenomenon, are identical and are directly related to the lack of action of parathyroid hormone on calcium, phosphorus, and bone metabolism. Since parathyroid hormone affects primarily the tubular re-absorption of phosphorus, its absence produces the following effects in sequence. First, there is a decrease in urinary phosphorus excretion. This is followed by a simultaneous rise in the serum phosphorus and fall in the serum calcium and lastly, by a decrease in urinary calcium excretion. Conversely, the presence of excess parathyroid hormone produces the opposite effects; namely, hyperphosphaturia followed by hypophosphatemia, hypercalcemia, and lastly, hypercalciuria(1). Parathyroid hormone has also been shown to enhance the dissolution of bone matrix through stimulation of osteoclastic activity if decalcification of the matrix has occurred to maintain the hypercalcemic state. If the demand for additional calcium is met through dietary sources, these changes in bone do not occur(2).

The now generally accepted criteria for the diagnosis of idiopathic hypoparathyroidism were first outlined by Drake et al. (3) in 1939 as follows: a low serum calcium, a high serum inorganic phosphorus, absence of renal insufficiency,

absence of intestinal dysfunction, absence of alkalosis, normal bones by x-ray, plus the presence of chronic tetany. Steinberg and Waldron(4) modified those slightly and set 7 mg.% as the minimum serum phosphorus level in patients under 16 years of age and 5 mg.% in adults.

The following case fulfilling these criteria of idiopathic hypoparathyroidism is reported.

History of Present Illness: A 35-year old white married male carpenter was first admitted to the Phoenix, Arizona Veterans Administration Hospital March 14, 1959, for evaluation of a convulsive disorder. During the summer of 1957 the patient began to notice periods of generalized weaknesses, emotional irritability, anorexia with occasional vomiting, and muscle cramps in the arms, legs, and feet. He continued working even though the symptoms became more severe and several months later noticed occasional drawing of the hands. On January 25, 1959, he had an epileptiform type seizure lasting several minutes, manifested by rhythmic, generalized muscular contractions, and loss of consciousness. When seen by a private physician within an hour, the patient was in a typical post-ictal state and on examination an early lenticular opacity was noted as well as a suggestion of papilledema. The patient was then referred to a neurosurgeon for evaluation. While hospitalized elsewhere for study, he had two generalized convulsions. The neurological examination was

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From the Medical Service, Veterans Administration Hospital, Phoenix, Arizona.

reported as negative except for slight atrophy of the right optic disk and some blurring of the left disk. Routine urinalysis, blood count, blood sugar, and chest and skull x-rays were normal. An electro-encephalogram was reported to show a mild diffuse dysrhythmia and a lumbar pneumoencephalogram was negative. There was a spinal fluid protein of 76 mg.%.

On discharge from the hospital early in February, the patient was placed on phenobarbital and sodium dilantin. After approximately three weeks, he developed a macular scaly rash over the trunk, face, and hands which persisted after a change of medication. With anti-convulsive drugs, the patient had no further seizures but did show increasing drowsiness, lethargy, and at times mental disorientation. There was a rapid loss of vision to the degree of light perception. The weakness, muscle cramps, anorexia, and vomiting persisted and by the time of admission there had been a total weight loss of 20 pounds.

Physical Examination: Height 5'9", weight 144 pounds, temperature 98.6, pulse 80, blood pressure 120/88 mm. mercury. The patient was a well-developed, somewhat poorly nourished white male who appeared chronically ill, apathetic, and dejected. He answered questions slowly although he appeared to be fairly well oriented. Eye examination revealed bilateral lenticular opacities of an advanced degree, and the fundi could not be visualized. On slit lamp examination by the ophthalmologist, the lenticular opacities were described as irregular cortical and nuclear cataracts, having the appearance of "cracked ice." The thyroid gland was not palpable and there was no cervical adenopathy. Examination of the heart and lungs revealed normal findings. The abdomen was scaphoid, nontender, and no masses were palpable. The skin was generally dry, and over the dorsum of the hands, wrists, and trunk there was a faint, macular, scaly rash. The neurological examination disclosed no abnormalities except for a positive Trousseau sign. The Chvostek sign was negative.

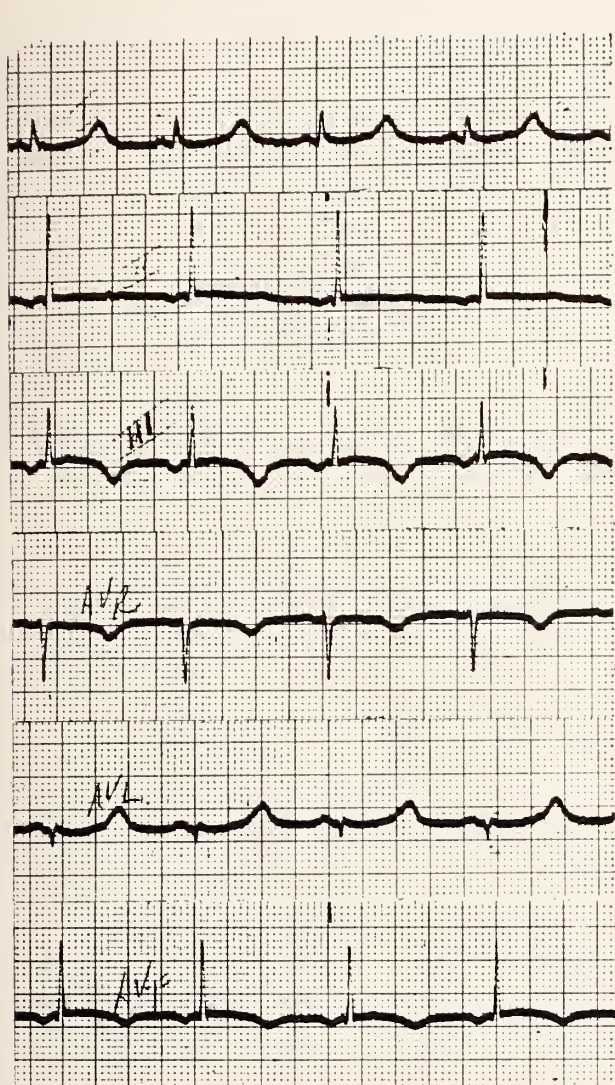
Laboratory Data: White blood count was 8,700, with a normal differential. Hemoglobin was 14.6 gms., hematocrit 43%, and sedimentation rate 8 mm/hour corrected. Urinalysis was normal, and the urine Sulkowitch reaction

showed a light precipitate. Blood serology was negative. Fasting blood sugar, blood urea nitrogen, serum sodium, potassium, chloride, and CO₂ were normal. Serum calcium was 3.5 mg.% and serum phosphorus was 8.9 mg.%. Total serum protein was 8.0 gm.% with a 1.5:1 albumin-globulin ratio. Alkaline phosphatase was 6.6 Bodansky units. Spinal fluid obtained under a pressure of 140 mm. of water was clear and colorless, with a cell count of 2 lymphocytes, and a protein of 72 mg.%. Chest x-ray, skull series, and a survey of the long bones showed no abnormalities. The electrocardiogram showed a nodal rhythm, rate of 72, and the QT interval prolonged at .52 seconds (fig. 1).

Hospital Course: The presence of rapidly developing cataracts and a recent convulsive disorder in this patient prompted investigation of the serum calcium and phosphorus levels. Repeated studies confirmed a severe hypocalcemia ranging from 3.5 to 4 mg.% and a hyperphosphatemia ranging from 7.5 to 9.0 mg.%. These abnormalities, in conjunction with tetany and tetanic equivalents, the absence of intestinal or renal dysfunction, the absence of alkalosis, plus the presence of normal bones by x-ray provided the necessary data for the diagnosis of a hypoparathyroid state. Since there had been no previous surgery to the thyroid gland, this was considered to be a case of idiopathic hypoparathyroidism. To rule out the possibility of pseudohypoparathyroidism, even though there were no clinical features of that disease, an Ellsworth-Howard test was performed. This resulted in a three-fold increase in the hourly urinary phosphorus excretion over control levels following the intravenous administration of 200 units of parathyroid extract (fig. 2).

The results of treatment initiated with Hytakerol and calcium chloride with follow-up serum calcium and phosphorus determinations, and quantitative urinary calcium and phosphorus excretions over a one year period are shown in figure 3. The daily urinary Sulkowitch test was consistently positive throughout with a moderate to heavy precipitate. Additional treatment consisted of a low phosphorus diet and the administration of aluminum hydroxide gel before meals.

During the first 10 days of treatment the patient had 2 mild convulsive seizures but other-



3/24/59

Nodal Rhythm - 70

Q-T Interval -.52

Serum Calc. - 3.5 mg.

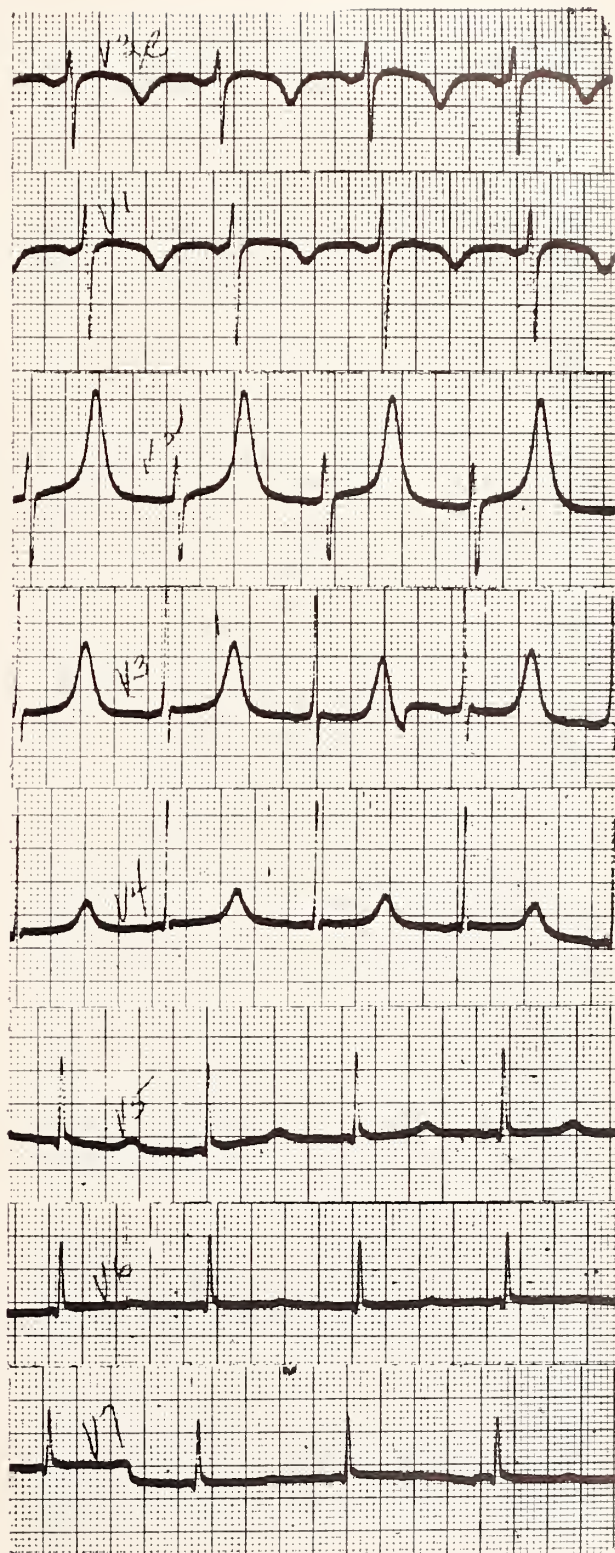


Fig. 1.

wise showed subjective and objective improvement even though the serum calcium remained low. A striking change was in the patient's mental status with the disappearance of lethargy. His appetite improved, there was no further anorexia or vomiting, and the skin rash cleared. The Trousseau sign was persistently positive and the Chvostek sign occasionally positive until

the end of the first month when the serum calcium reached 5.5 mg.%. After that, both remained negative, there were no further muscle cramps, and the patient was ambulant about the ward within the limits of his extremely impaired vision. The nodal rhythm had reverted in one week to a sinus rhythm although the QT interval remained prolonged at .5 seconds. A

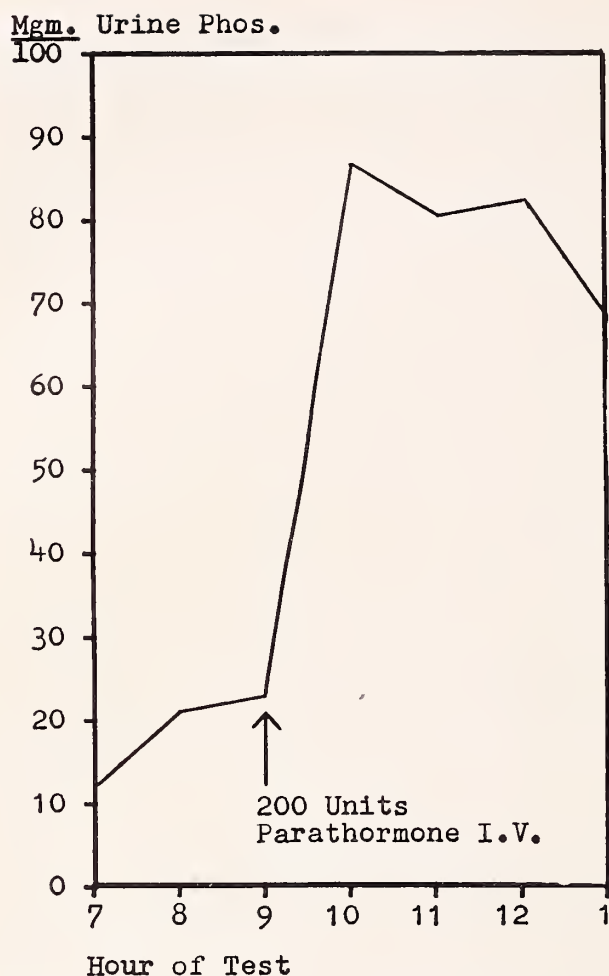


Fig. 2. ELLSWORTH - HOWARD TEST

month later, with a serum calcium level of 5.5 mg.%, the QT interval was .44 seconds, and when the serum calcium reached 7.8 mg.%, the QT interval became normal (fig. 4).

At the end of the first month, the Hytakerol was changed from capsules to the oil solution in the same dose of 3.75 mg. daily. Also, calcium gluconate in the dose of 5 gm. four times daily was substituted for the calcium chloride. At the end of the second month the dose of Hytakerol was increased to 5.0 mg. daily since control was still inadequate. The patient remained asymptomatic, and at that time extraction of the cataract of the right eye was carried out without difficulty. He was subsequently fitted with a temporary lens and sent home to continue his medication program. During the period at home, blood was sent to the hospital every two weeks for calcium and phosphorus determinations, and the patient kept a record of daily Sulkowitch reactions.

On his return to the hospital late in July

1959, four months after institution of treatment, the patient reported a further increase in strength and a feeling of well-being. The only positive physical finding, except the left lenticular opacity, was transverse ridging of the nails. This was not present initially, and as the nails grew out these changes did not reappear. Because of a fall in the serum calcium to 7.0 mg.% and a rise of the phosphorus to 9.6 mg.%, the dosage of Hytakerol was further increased to 7.5 mg. daily. On August 11, 1959, the patient underwent a left cataract extraction again without complications. Permanent glasses were fitted correcting the vision in both eyes to 20/30. Except for occasional visits to the hospital the patient remained home, continued to feel perfectly well, and returned to work.

Even after continuing Hytakerol in the dose of 7.5 mg. daily and calcium gluconate in the dose of 20 gm. daily, the serum calcium, except on one occasion, did not go above 8.0 mg.%, and the serum phosphorus did not go below 7.0 mg.%. Also, the urinary calcium excretion remained elevated and the phosphorus excretion depressed. At the end of seven months, it was decided to change to treatment with Vitamin D. Initially this was given in the dose of 150,000 units daily and the Hytakerol in a reduced amount of 3.75 mg. daily. After four weeks the Hytakerol was discontinued, and the vitamin D was increased to 300,000 units daily. The calcium gluconate was also discontinued and 8.0 gm. daily of calcium chloride substituted. Following that change, both the serum calcium and phosphorus returned to normal levels and remained so. The vitamin D was gradually reduced to a maintenance of 150,000 units daily and the calcium chloride to a maintenance of 4.0 gm. daily. On his occasional visits to the hospital, the patient stated that he felt better mentally and physically than he had for at least two years, had continued full time work, and had gained 15 pounds of weight.

DISCUSSION

Etiology and Incidence. The etiology of idiopathic hypoparathyroidism is not known. In one autopsied case all four of the parathyroid glands appeared grossly normal; however, microscopically the cell parenchyma was replaced by fat(3). In two others reported, no evidence of parathyroid tissue could be found(5, 6).

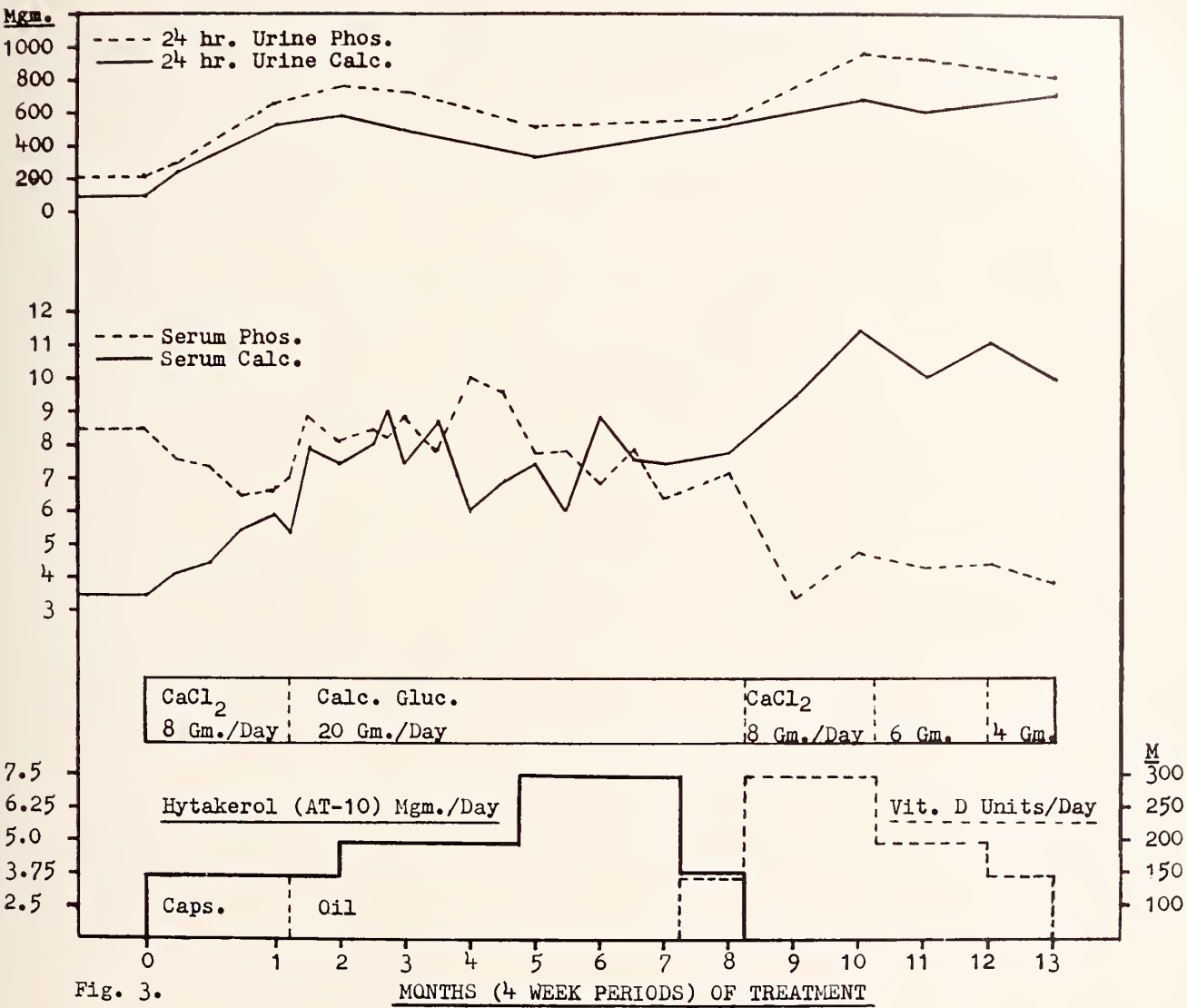


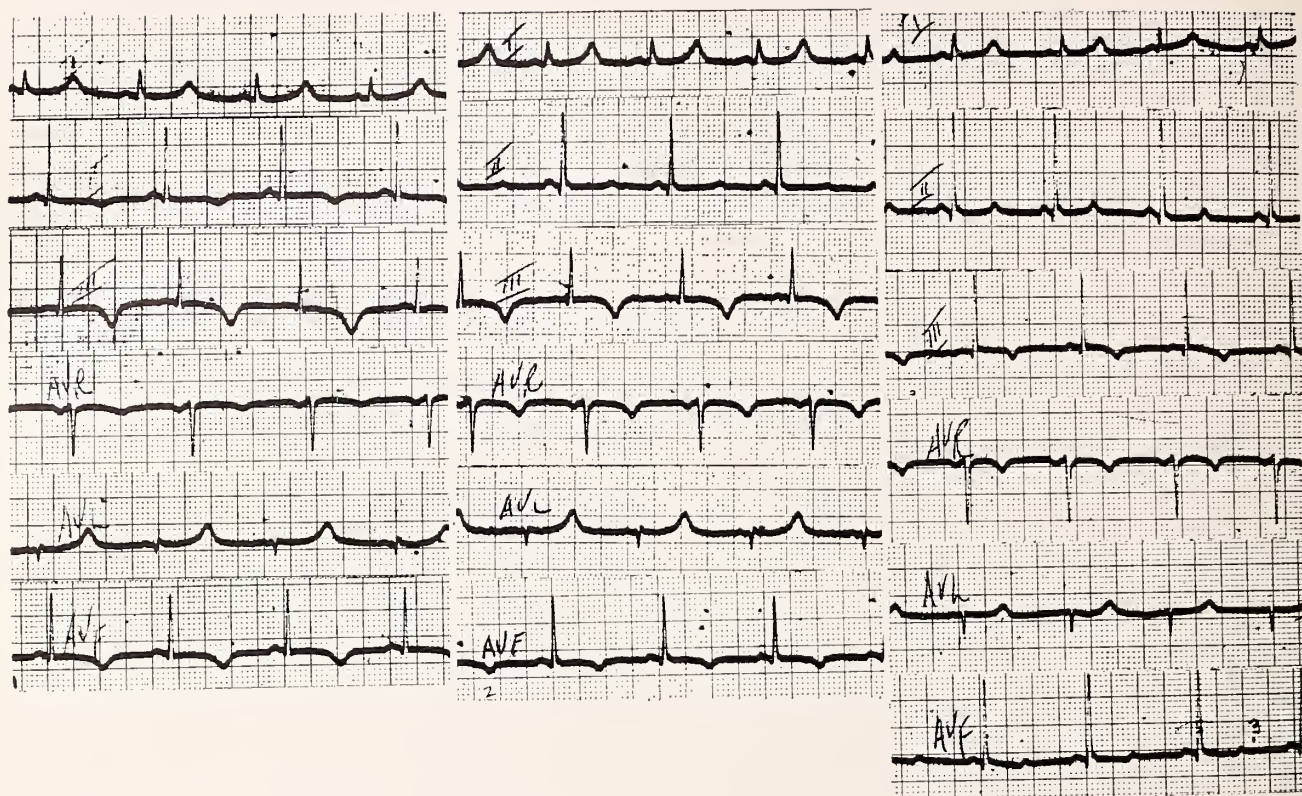
Fig. 3.

MONTHS (4 WEEK PERIODS) OF TREATMENT

This is apparently an extremely rare disease. Drake et al.(3) reported six cases by 1939 and found only eight more in the literature which satisfied their criteria. Lachman(7) in 1941 collected 70 cases from the world literature which included 20 new cases from the various Danish hospitals. Steinberg and Waldron(4); however, in their intensive review in 1952 accepted only 30 of Lachman's cases and a total of 52 from the world literature adding a new case of their own. Dietrich(8) in 1952 stated that there had been 113 cases reported but pointed out that all were not positively substantiated by records. Bronsky et al.(9), in a critical review of the literature up to July, 1957, analyzed the reported cases to clarify the relationship between idiopathic and pseudohypoparathyroidism. By excluding all cases in which this differentiation could not be made, many cases of hypoparathyroidism of unknown etiology were not listed.

They reported 50 cases of idiopathic hypoparathyroidism and 40 cases of pseudohypoparathyroidism. In their series, the average age of onset in the idiopathic cases was 17 years with the largest percentage in the first decade, and the ratio of males to females was equal. Steinberg and Waldron(4) reported a similar age and sex distribution.

Albright et al.(10) in 1942 reported on three cases of pseudohypoparathyroidism and, in addition to the criteria previously given, set forth these distinguishing features: the patients tend to have round facies, short and thick-set statures, and brachydactylia. They exhibit a lack of renal response to the action of parathyroid hormone which is the basis of the Ellsworth-Howard test(11). A good response generally considered is an increase in the hourly excretion of phosphorus by either 40 mg. or 250% over control



3/31/59

Sinus Rhythm - 68
 Q-T Interval -.50
 Serum Calc. - 4.0 mg.

4/21/59

Sinus Rhythm - 72
 Q-T Interval -.44
 Serum Calc. - 5.5 mg.

5/7/59

Sinus Rhythm - 75
 Q-T Interval -.36
 Serum Calc. - 7.8 mg.

Fig. 4.

levels. Bronsky et al.(9) pointed out that in accepting the Ellsworth-Howard test as the only evidence of pseudohypoparathyroidism, the use of a potent extract should be demonstrated on adequate controls. It has been shown; however, that resistance to the action of parathyroid hormone in that disease is not always complete(12). It has further been suggested by others that the diagnosis should not be made on that test alone(13).

Clinical Manifestations. The prime clinical manifestation of the hypoparathyroid state is due to a reduction in the serum level of ionized calcium and the development of tetany, manifesting as carpopedal spasm(1). This is the most common symptom in the reported series, being given as 78%(4), 70%(14), 76%(9) and 64 (8). The incidence of tetanic equivalents, defined as muscle cramps, numbness, paresthesias or laryngeal stridor is somewhat more varied. Whether a patient will exhibit tetanic equivalents or frank tetany has been attributed to the severity of the

disease in the individual case(1).

The second most commonly reported manifestation is recurrent generalized convulsions. The incidence again varies with the reported series and is given as 52%. (4), 42% (14), and 70% (9). A significant number of patients have been diagnosed as suffering from idiopathic epilepsy for varying lengths of time before the correct diagnosis of a hypoparathyroid state was made. Illustrative of this was a case with a 20 year history reported by Treusch(15). There may also be many varieties of motor epilepsy, including petit mal attacks(16, 17). Harrison,(18) in discussing the problem of idiopathic hypoparathyroidism in childhood, reported six cases with epilepsy as the most common presenting problem and interestingly enough found tetany in only one of the six patients.

The third most common symptom and most difficult to evaluate in the individual case is the presence of some type of mental disorder. This

may vary from a frank psychosis with marked mental deterioration to a simple irritability or emotional lability(19, 20, 21). Additional symptoms, which are listed as occurring but of a lesser frequency, are such gastrointestinal disturbances as constipation, diarrhea, nausea, and vomiting(4, 8, 9).

A positive Chvostek or Trousseau sign was cited by Steinberg and Wadron(4) as being present in every case in which it was sought. This would be expected since both tests are a means of eliciting latent tetany. Cataracts have been found in roughly half of the cases reported(4, 7, 9). The typical lens changes are described as consisting of numerous small discrete opacities layered in the cortex, and separated from the capsule by a clear zone. Some of these are small, white, and punctate and sometimes are aggregated into larger flakes. Ultimately, the entire lens becomes uniformly opaque(22). Trophic changes are the third most commonly observed abnormal physical finding. These include a dry scaly skin, transverse ridging of the nails, and sparse, dry, brittle hair. Monilial infections involving the skin and mouth were also found but were less common than the ectodermal changes alone(4, 9). The monilial infections of the nails are quite resistant to treatment, but the nail changes themselves disappear after the serum calcium returns to normal as do the skin and hair changes(23). Some type of dental defect occurs with about the same frequency as the trophic changes(9). Aplasia or hypoplasia of the teeth is seen if the hypoparathyroid state occurs prior to their final formation(1).

Papilledema was found by Steinberg and Waldron(4) in 13.5% of the cases they reviewed, and in those seven cases, the spinal fluid pressure was elevated in three. Bronsky et al.(9) found papilledema in 18% and stated that the spinal fluid pressure was frequently elevated. This has been explained on the basis of cerebral edema(24).

Laboratory Findings. In addition to the hypocalcemia and hyperphosphatemia, other abnormal laboratory findings may be present. The electrocardiogram shows a prolonged QT interval with return to normal after the hypocalcemia is corrected(9). Calcification of the basal ganglia

is not uncommon(4,9). Camp(25), in a review of this subject, found 12 cases of calcification of the basal ganglia in which there was clinical evidence of parathyroid insufficiency and tetany. He did not consider the calcification itself to be the cause of the convulsions or mental abnormalities as it occurs in patients with encephalitis, toxoplasmosis, and congenitally acquired mental deficiency. Abnormal bone calcification is not common but occasionally occurs in the hypoparathyroid state and involves an increase in bone density(1).

Diagnosis. The criteria for the diagnosis of idiopathic hypoparathyroidism have been listed. Since these patients usually have long-standing manifestations which might not suggest the diagnosis, there are some situations that should call for calcium and phosphorus studies. These would include all patients exhibiting tetany or tetanic equivalents in the absence of alkalosis, all epileptic patients, those patients showing mental changes not on an obvious organic basis, and especially the young patient with cataracts. The isolated finding of a prolonged QT interval or calcification of the basal ganglia should also be studied.

Treatment. Theoretically, replacement therapy in idiopathic hypoparathyroidism with parathyroid hormone would seem ideal. However, because of variabilities in the potency of the preparations, the development of resistance to its action over prolonged periods of use, and its expense, it is neither used nor recommended. Vitamin D or Dihydrotachysterol (AT-10) is effective and is the treatment of choice in this condition(1,2,4,9). Besides the calcium absorbing and phosphorus diuresing effect of vitamin D and like compounds, a third possible action has been postulated by Henneman(26) to be the increased intestinal absorption of nitrogen, sodium, potassium, and magnesium. Exclusion of milk and milk products in the diet and the administration of aluminum hydroxide gel are also recommended, and supplemental calcium salts are usually necessary(1,2).

The dosage of these various agents must be individualized depending on the response of the patient. The Sulkowitch test, used to determine semi-quantitatively the amount of calcium in

the urine, has long been advocated as the best method to determine the dosage of either sterol (1,4). It has been shown, however, that hypercalciuria can occur in the presence of hypocalcemia in patients treated with vitamin D, Dihydrotachysterol, or both (1,27). Litvack et al. (28) found this situation in 8 of 12 patients with surgical hypoparathyroidism, in 2 of 3 patients with idiopathic hypoparathyroidism, but not in 6 patients with pseudohypoparathyroidism. They postulate that this is due to still another action of vitamin D; namely, a reduction in the tubular reabsorption of calcium. Therefore, frequent determinations of the serum calcium are imperative to avoid the danger of either over-treatment or under-treatment (27,28,29). In the situation of hypocalcemic hypercalciuria, it is considered preferable to maintain the serum calcium at or near normal levels and to rely on a large urinary volume to prevent renal complications.

Thyroid extract has been shown to raise the serum calcium in patients with either idiopathic or surgical hypoparathyroidism (30,31). Also, prolonged treatment with Benemid has been accompanied by a reduction in hyperphosphatemia, (32). Parathyroid transplant was reported in one case to have been successful after a lag of two years (33). Adequate treatment will correct the frequently incapacitating manifestations of the hypoparathyroid state. Only one case was encountered which showed some evidence of regression of cataracts under therapy (34). The prognosis for life; however, even in the untreated patient, is good. Of the seven deaths in the cases reviewed by Bronsky et al. (9) four were due to Addison's Disease and death directly due to tetany or convulsions was not encountered.

In comparing the features of this case of idiopathic hypoparathyroidism with others reported, tetany and tetanic equivalents, anorexia, mental changes, trophic changes, convulsions, and cataracts are all common manifestations. Somewhat unusual was the very rapid development of the cataracts and the late appearance of transverse ridging of the nails. A nodal rhythm, in conjunction with a prolonged QT interval, was not encountered in the cases reviewed. The clinical improvement seen in this patient with below normal serum calcium levels has been described in others (28).

Two unusual features of this case occurred in

the response to treatment. One was a persistent hypocalcemic hypercalciuria. This can possibly be explained on the additional action of vitamin D, that of decreased tubular reabsorption of calcium, suggested by Litvack et al. (28). The other was an incomplete chemical response to treatment with Hytakerol, even though it was given in excess of the average recommended dose (1, 2), and the complete response to treatment with vitamin D. A recent investigation by Terepka and Chen (35) may explain this discrepancy. They compared the physiological and biochemical properties of crystalline Dihydrotachysterol (AT-10) to Hytakerol. On calcium and phosphorus mobilizing activity in rats, it was found that Hytakerol had significantly less effect than pure crystalline AT-10. By utilizing mixed paper chromatograms, the AT-10-like ultraviolet absorbing material in Hytakerol was shown to be chromatographically different from crystalline AT-10. It was concluded by the authors that commercially available Hytakerol did not contain crystalline AT-10, but an isomer of lower potency. On this basis and on the experience in this patient, vitamin D would be the sterol of choice to use in treatment of the hypoparathyroid state.

SUMMARY

1. An additional case of idiopathic hypoparathyroidism with a one year followup is presented. Unusual features were persistent hypocalcemic hypercalciuria and apparent AT-10 resistance for which explanations are offered.

2. The features of the disease are reviewed and suggestions made which might lead to its more frequent or at least earlier diagnosis.

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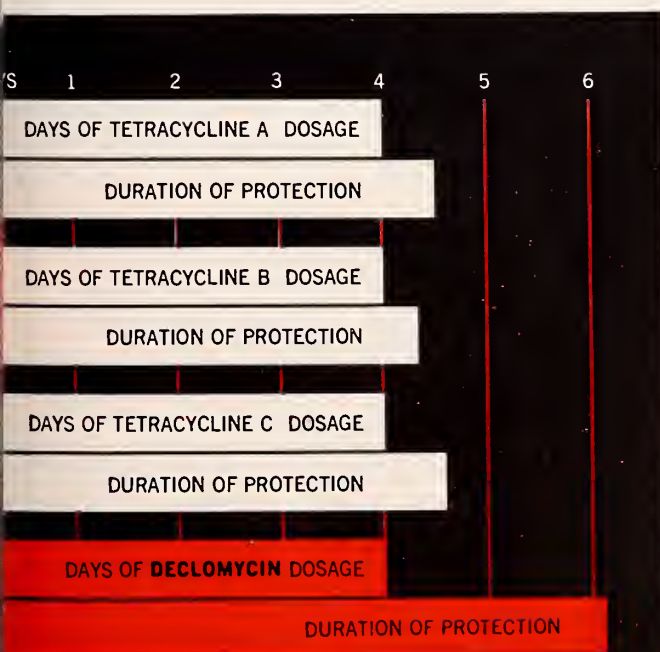
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An Effective Treatment of Verrucae

L. C. Sutherland, M.D.

Mark W. Westervelt, M.D.

We are convinced oxytetracycline is toxic to the verrucal virus. We do not feel the results are simply a result of chemical irritation. The advantages are little or no scar tissue with no residual discomfort, less tedious and traumatic treatment for the patient and physician, and an effective therapeutic procedure that obviates recurrences of the tumor.

FROM our experience it appears oxytetracycline topical ointment will cause the resolution of verrucae. This procedure is prolonged and tedious where hyperkeratosis and acanthosis exist as in plantar warts. Filiform or flat warts respond more readily. Because of this we have used injectable oxytetracycline solution in the treatment of all types of warts or verrucae.

METHOD:

For the past four months we have been injecting plantar, flat, and filiform verrucae at the Student Health Service. We use the 100 mgm/2 cc intramuscular solution of oxytetracycline. For a moderate size wart 0.5 cm. in diameter, we use 0.5 cc. of oxytetracycline solution. The wart area is cleansed and infiltrated with procaine 1% or 2%, then the oxytetracycline injected. Insertion of the needle is centrally through the base, depositing solution beneath the base. Then more is injected into the base itself. Lateral quadrant injections are of use for large or plantar type warts.

RESULTS:

Adequate infiltration will destroy verrucae. In the presence of hyperkeratosis and acanthosis, repeat injection may be necessary. Adequate in-

jection will destroy plantar warts at initial treatment. Filiform or flat warts atrophy and desquamate in four to seven days. Plantar warts atrophy and gradually separate over a period of two to four weeks. Occasionally at the end of two or three weeks beneath the plantar wart a collection of fluid develops. If the area is opened at this time, pink to red young layers of skin are visible at the base area. The overlying callus may be removed if desired; actually it is preferable to allow spontaneous desquamation. More often plantar warts simply atrophy and desquamate until by the third or fourth week no reaction or scar is visible.

We have treated approximately forty verrucae without recurrence by this method. The following are a few cases treated by the ointment and injection.

CASES:

Case 1. The first one treated was in December 1953. A 17-year-old college student was seen for acute tonsillitis. Also he complained of a large filiform verruca of the lateral aspect of the right foot. It was 10 mm. in diameter. An oxytetracycline dressing was applied and prescribed twice daily. On recheck of the patient four days later, this verruca had completely resolved with-

out scar formation or reaction. No recurrence occurred during the 6 month follow-up.

Case 2. A white male, age 68 years. Infected verruca of left scapula region. One week of infection with erythema about 5 mm. around mole. Purulent drainage present. Hot Epsom salt compresses q.i.d. followed by oxytetracycline ointment dressings. Lesion healed and verruca disappeared in one week. No recurrence after three months.

Case 3. A 20-year-old white female college student was seen 4/1/60 complaining of a painful plantar wart of the central area of the right heel. The wart was 5 mm. in diameter with surrounding callus of 5 mm. Following procaine anesthesia 1 cc. of oxytetracycline solution was injected into the base and beneath. Also lateral quadrant injections. On 4/7/60 the wart was pale and appeared non-visible. 4/25/60 the area was normal. Slight desquamation was evident but no scar or tumor was present.

Case 4. Plantar warts of 3rd finger right hand in a 19-year-old college student. Two verrucae 3 mm. in diameter injected after procaine anesthesia with oxytetracycline solution. In two weeks crusts of callus and wart debrided. Base revealed young skin layers without scarring or tumor evident. No recurrence in 6 month follow-up.

Case 5. On 1/21/60 a 19-year-old white male college student was seen complaining of a painful plantar wart of the left foot. The wart was 6 mm. in diameter with surrounding callus of 5 mm. It was located over the 2nd metatarsal head. After preparation, 0.7 cc oxytetracycline solution was injected into the base of the wart and beneath. On 1/27/60 the wart appeared as a crust only. This was excised and pink unscarred skin covered the base. No visible scar was present. No recurrence to the present.

Case 6. A 19-year-old college student was seen during entrance examination 9/28/59. She was recovering from excision of a large filiform-plantar type verruca of the large toe right foot. The area was under the lateral nail extending into the nail base. Finally healing occurred and recurrence became evident. The recurrence was

10 x 12mm very tender and painful. On 12/2/59 the verruca was again excised by a local M.D. She returned to the clinic for dressings. The area healed and developed a recurrence 8 x 10 mm. arising from the nail bed. On 2/16/60 injection of oxytetracycline was done; pain and soreness were relieved by this injection. A crust was removed 3/17/60 revealing a thickened scarred nail bed. The toe in the area has scar tissue from two previous surgical efforts. Probing and trimming of nail under procaine anesthesia failed to show any evidence of recurrence.

SUMMARY:

This is a proposed treatment for all verrucae caused by the wart virus. Adequate injection of oxytetracycline into a verruca will cause its resolution. This may require more than one treatment, particularly in warts accompanied by callus formation such as plantar warts. In old recurrent cases or large involved areas, multiple internal injections are indicated. Also partial debridement of callus at times is of advantage to improve infiltration. Paradoxically a soft flat wart may need reinjection because the oxytetracycline is absorbed rapidly. The majority of cases will respond to initial injection if care is taken to properly infiltrate the area. The idea that suggestion is important in verrucal therapy seems irrational, and we do not feel it a factor in treatment. This treatment is of interest since it is an answer to verrucae treatment and a case of viral tumor destroyed by an antibiotic.

REVIEW OF LITERATURE:

There are many methods described for the therapy of verrucae. B. Soloman 2:525-1951 describes treating two cases with Aureomycin ointment. Results were good but treatment was greatly prolonged. The multitude of treatments with varying results points out the old truth of lack of specific effective therapy.

ADDENDUM

The injection of verrucae of the fingers, particularly in children, should be avoided. A pressure or chemical necrosis may occur in this region. In areas other than the plantar, we advise a 1:1 dilution of oxytetracycline with saline. Also we suggest until one is familiar with technique and response he should treat only plantar verrucae.

Physiologic Aspects of Cardiac Surgery

Dwight C. McGoon, M.D.

Open heart surgery demands full knowledge of the physiological changes relative to the cardiovascular system as well as the behavior of the blood in the various pump oxygenators and particularly the acid-base balance.

A great deal of study has gone into the physiological changes occurring with extracorporeal circulation, and it has been determined that perfusion should closely simulate normal circulation. Physiological changes are more apt to show variations when hypothermia is used, particularly with extracorporeal systems.

Study of the physiology of circulation in altered states, particularly in acquired heart disease, reveals the particular valve or area involved. This is accomplished by numerous techniques relative to dye dilution curves and other studies described.

SO extensively has the bold enterprise of open cardiac surgery been dependent upon strict observance of the physiologic demands and conditions of the body that it has become of the most pressing importance for all those involved in cardiac disease to become intimately acquainted with such items as oxygen saturation of the blood, pressures, flows and resistances, acid-base balance, myocardial physiology and others.

A tremendous amount of study has been given during the past decade to the alterations in body physiology which occur during and after the employment of full-body perfusion. A stimulus for this study has been the need to determine the optimal system of perfusion which should be employed in surgical practice. In the light of increasing experience and knowledge, the opinion seems now generally accepted that any clinically employed system of perfusion should closely simulate most features of the normal circulation of blood as accomplished by the heart and lungs themselves. Thus, the volume of blood flow perfused through the body should approximate the normal cardiac output of the anesthetized patient, which amounts to approximately 2.4 liters per minute per square meter of body surface. With proper arterial and venous cannulation and an appropriate extracorporeal apparatus, a nearly normal hemodynamic status can be accomplished.

In certain instances, mild hypothermia com-

bined with whole-body perfusion has been beneficial in that it allows the rate of perfusion to be lower. It is known that certain complicated forms of cardiac disease could be best treated by complete cessation of all blood flow through the body, and to bring about this state profound hypothermia, produced by extracorporeal cooling, shows great promise. At a body temperature of 15° C. the central nervous system is protected from irreversible injury during periods of total cessation of the circulation lasting 30 minutes or more.

Heart disease results in an altered hemodynamic state, and a study of this abnormal type of physiology of the circulation results in clues which are of diagnostic value and are helpful in determining therapy. To illustrate, in the care of patients who have acquired valvular heart disease, cardiovascular physiologists can render considerable practical assistance because of the special knowledge they have gained from study of the abnormal circulation in these patients. Study of pulse contours and dye curves after the injection of dye into various chambers of the cardiovascular system is of value in determination of which valve or valves are involved, and whether stenosis or insufficiency is the significant lesion.

In conclusion, the application of many of the physiologic principles of cardiac surgery is illustrated by presentation of some of the techniques and results of the surgical treatment of acquired valvular heart disease.

*Abstract of paper read at the meeting of the Arizona Chapter of the American College of Chest Physicians, Scottsdale, Arizona, May 4 to 7, 1960.

Section of Surgery, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

Regional Anesthesia Combined with Intramuscular Sodium Pentothal for the Pediatric Orthopedic Patient

Kenneth K. Keown, M.D.

Infants and children are not small adults and are much more anxious as patients than are adults. This article deals with a newer approach to pre-medication in children by the use of intramuscular pentothal sodium. Advantages, disadvantages, techniques and complications are discussed and evaluated. Intramuscular pentothal sodium can be a valuable technique in allaying fears of children going to surgery as they are asleep while still in the presence of their parents. The use of intramuscular pentothal sodium makes regional anesthesia in children a much more feasible entity.

THE prime requirements of anesthesia are the abolition of pain, to afford maximal safety to the anesthetized patient and to provide an adequate operative field for the surgeon. It is unfortunate, that at times, we anesthesiologists lose contact with the requisites of the surgeon. It is well, at all times, to remember that the most important person in the operating room is the patient. The efforts of all physicians, nurses, and other ancillary personnel should be directed toward the achievement of the maximum safety for the patient's well being.

Infants and children are not small adults. The requirements to produce and maintain anesthesia in the young are varied and complex. Fastidious attention to the details of the pre-anesthetic survey and for the preparation of the patient are mandatory for a well conducted anesthesia. The psychological preparation for anesthesia and surgery for the pediatric patient is often achieved under the most trying of circumstances. This includes pain, unfamiliar surroundings and visitations from strangers. The unfamiliar hospital garb worn by nurses, physicians and others accentuates the patient's anxiety.

Infants and children have a higher oxygen requirement in comparison to their size than do adults. To reduce fear and excitement of the infant, both of which increase the basal metabolic rate the use of heavy preliminary medication and intramuscular Pentothal is recommended.

Adequate anesthesia for the operative procedure is of course the responsibility of the anesthesiologist. We have found the use of regional anesthesia to be particularly effective and reliable in the infant and child. A desirous result of regional anesthesia is the relative freedom of vomiting and the control of pain in the immediate post-operative period. Allowing earlier ambulation and feeding of the young patient, thus disturbing less the fluid and electrolyte imbalance produced by anesthesia and surgery.

Sodium Pentothal has enjoyed wide clinical application since its introduction by Lundy in 1936. Ordinarily Sodium Pentothal is administered in appropriate concentrations by the intravenous route. It has been well established that the installation of a five to ten per cent solution of Sodium Pentothal rectally will produce adequate basal hypnosis.

A third route of administration is the use of

Presented at the annual meeting of The Arizona Medical Association, Scottsdale, May 4-7, 1960.

Professor of Anesthesiology, School of Medicine, University of Missouri.

2½% or 5% solution of Pentothal intramuscularly in the pediatric patient. We have used this technique in individuals as young as six hours of age and as old as six years. It is believed that intramuscular Pentothal should not be used in individuals who weigh 50 pounds or more. The use of intramuscular Pentothal has proven satisfactory to provide basal hypnosis, to supplement inadequately premedicated infants and children and to produce adequate sedation prior to the use of regional anesthetic agents.

The use of intramuscular Pentothal Sodium converts an uncooperative patient in whom regional anesthesia would be impossible to a subject for whom the regional techniques are readily adaptable.

Our technique of administration is to inject a five per cent solution of Pentothal through an 18 or 20 guage needle deep into either upper outer quadrant of the buttocks. Extreme care must be exercised to inject the solution deep into the muscle. Superficial injections may result in sluffing or a prolonged absorption time. Every possible precaution against intravascular injection must be taken. This is most easily achieved by careful aspiration with the plunger of the syringe.

The dosage of intramuscular Pentothal recommended is from five to ten milligrams per pound. The dose is regulated according to the physical status of the patient, the duration of the surgery contemplated and the effect of the previously administered preliminary medications. The very debilitated child should receive not more than five milligrams per pound as dehydration, hypovolemia and debility per se all have a depressant effect on a child's cardiovascular and respiratory systems. An individual that is acutely ill with a disease will require as much intramuscular Pentothal as will his healthy counterpart. It is recommended that one milligram per pound of body weight of Meperedine be administered 90 minutes prior to the administration of intramuscular Pentothal.

If the surgical intervention is to require more than 90 minutes of anesthesia it is recommended that one-half the original dose of intramuscular Pentothal be administered after 75 to 80 minutes of hypnosis has been afforded.

The average onset of hypnosis is from 7 to 8 minutes in the premedicated infant and approximately twice that time in the child who has received no meperedine or morphine as preliminary medication. Typically the infant or child will sleep for two or three hours after the original administration of the intramuscular Pentothal. The child is easily aroused, however, after approximately 90 minutes.

There are certain specific contraindications that must be closely adhered to or untoward depression will occur in the child in whom intramuscular Pentothal has been used. The contraindications that we believe invalidate the use of intramuscular Pentothal are hypovolemia, pyoderma of the gluteal area, respiratory depression and individuals with constrictive or obstructive lung pathology.

The two most common complications following the use of intramuscular Pentothal are: respiratory depression, and secondly a diminished cardiac output resulting from overdosage.

Obviously any technique which utilizes a precalculated dose is less accurate and more prone to anesthetic complications as a result of improper dosage than the administration of a drug affording minute to minute control. With experience the frequency of respiratory and cardiovascular depression can be eliminated or restricted in frequency. Respiratory depression if observed rarely lasts more than three or four minutes.

The injection of a five per cent solution of Pentothal is painful because of its alkalinity. The child will ordinarily cry for a brief period of time, rarely more than thirty to sixty seconds. If the patient has been adequately sedated with meperedine the crying is less vigorous and thus untoward oxygen consumption is minimized.

Advantages of the use of intramuscular Pentothal are the following: It allows a simple quiet induction affording excellent basal hypnosis.

One of the very distinct advantages of the use of intramuscular Pentothal has been the retardation of nasal, pharyngeal and gastric secretions. The emergence from the combination of regional block and Sodium Pentothal anesthesia provides a more controllable and calm child.

This is considered particularly desirable in the very young patient.

The regional anesthetic agents used in the orthopedic patient have been one per cent Lidocaine and 0.2 per cent Tetracaine. In individuals in whom procedures lasting more than 90 minutes are anticipated we use a combination of Lidocaine and Tetracaine to which five drops of one to one thousand solution of epinephrine is added to each 100 cc of solution.

The utilization of brachial plexus block by means of the axillary route described by Accardo and Adriani has been used in the greatest number of children for orthopedic and reconstructive procedures of the upper extremities. There are distinct advantages to this technique such as the avoidance of pneumothorax and the facility with which the anatomical landmarks can be palpated. At the level of the insertion of the pectoralis major anteriorly and the latissimus dorsi posteriorly the terminal portion of the axillary artery is palpable. With the use of the artery as a landmark the nerves are easily blocked. Two 22 guage needles, one to one and a half inches long are recommended. The first needle is directed above the artery until contact is made against the humerus. The needle is introduced at the level of the insertion of the pectoralis major. A second 22 guage needle is introduced directly inferior to the first so that the axillary artery is straddled. One to four cc's, depending upon the size of the infant, of the regional anesthetic solution is injected into each of the two needles previously placed. Excellent sensory and motor anesthesia is produced within 15 minutes. This combination of intramuscular Pentothal and regional anesthesia utilizing the axillary route for brachial plexus block has been used for all infants and children who are to undergo surgery of the upper extremity. Included have been all fractures of the radius, ulna and distal $\frac{2}{3}$ of the humerus. Reconstructive open surgery, as well as tendon repairs, and reconstructive surgery

following burns of the upper extremity have also been included. It is well to do the second block approximately fifteen minutes prior to the manipulation on the affected side. It is well recognized that fractures in infants and children retard or stop all gastric and intestinal mobility following the initial injury. Children seem to have a predilection for sustaining fractures of their upper extremity immediately after having consumed a full meal. In our series of 85 patients we have not had one instance of vomiting during the course of the operative procedure.

The necessary precautions attendant with proper anesthesiological practice should always be made. This includes an available source of oxygen, a mode of administration of the oxygen, artificial airways and available parenteral fluids.

The facility with which regional anesthesia can be produced in the upper extremities following basal narcosis with intramuscular Pentothal Sodium has proven satisfactory to patients, orthopedic surgeons and anesthesiologists.

The combination has proven effective for both emergency and elective surgery.

It is our clinical impression that post operative swelling has been minimized as a result of the sympathetic blockade attendant on the block of the brachial plexus.

The requirements for efficiency are a knowledge of the anatomy of the upper extremity, knowledge of the pharmacologic action of the specific regional anesthetic agents used and gentleness.

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The President's Page

Antiscientism and Medicine

Lindsay E. Beaton, M.D.



Lindsay E. Beaton, M.D.

This is an age of paradoxes, and not the least of these is the fact that a culture that has come to depend on machines is yet pervaded with hostility against the science that underlies technological advances. Suspicion of and antagonism against science have been widely documented, increasingly in the '50's, but really ever since the end of

World War II, a dating that is obviously significant and perhaps explanatory. Kirtley F. Mather, in an address before the American Association for the Advancement of Science in 1951 gave the first formal recognition to "the problem of anti-scientific trends", voicing what many of his colleagues had been thinking for five years. History, of course, records recurrent attacks on the scientific knowledge of the day. In the latter half of the 19th century, for example, the foes of evolution mounted a particularly nasty foray from the religious quarter. But no century prior

to the 20th has been primarily based on science, and it would seem at first blush as though an attack on it in the modern era would be akin to assaulting the Catholic structure of civilization in medieval Rome, the monarchical fundamentals of Bourbon France, or the cement of imperial divinity in the Japan of the Shogunate, chipping at the necessary foundation of the society of the age.

Others have accumulated the evidence to demonstrate that antiscientific trends do exist, that there is massive resistance to what science stands for and teaches, and that many people, perhaps a majority, consciously or unconsciously oppose scientific method, scientific thinking, and their results. The brief analysis of this essay needs only the support of illuminating examples, which the restraint of space will make compulsorily few, but the collection of exhibits is limited only by one's patience and the number of filing cases one can afford. Beneath the forest of specific citations there is the soil of general attitude that one senses in the press, radio and television; in the jokes that run through the populace; in the laws that are passed, the sermons that are preached, the cartoons that are drawn. The mad and sinister scientist is a stock figure of the movies and of magazine fiction. Certain irrational fears, so easily ignited, have the same

roots. One recalls Orson Wells' radio hoax of the Martian invasion. There is a plain feeling at large that the scientist possesses more powers than ever the sorcerer dreamed of and that he is not bound by the considerations of ordinary folk in their use. Dwight Eisenhower, in his farewell address, found it important to warn the nation against two threatening dominancies, that of the military and that of science. One of the most telling illustrations of basic popular bias was the study done in 1957 by Margaret Mead and Rhoda Métraux on the image of the scientist among high school students. While this indicated that high school adolescents regard the scientist as brilliant and dedicated, altruistic and gifted, he is also viewed as narrow, wanting in breadth of experience, and specifically lacking understanding of the usual interests of Americans. His work is seen as tedious, often dangerous, and poorly paid. He is judged irreligious and possibly not patriotically reliable. Specifically he is not the hero for a right-thinking boy, and not marriage bait for the boy's sister. The portrait is one that is likely to evoke a negative response for selection of either career or mate. With present compulsions for security, early matrimony, and social adjustment, the lonely, responsible, sometimes austere figure of the scientist or professional man is not as attractive a model for the young as we blithely assume. If high school children hold this picture of scientists and their work it is hard to see where or how in their future lives their perspective would be trued. Presumably a majority choose their vocations at this time and then select college courses to fit the choice. Many potential scientists must be lost at this educational divide.

If this be a common misconception, another question arises. Is anti-scientism an isolated psychological set or is it part of a permeant anti-intellectualism? Perhaps the latter interpretation is valid in some measure, but the paper by Mead and Métraux proves that the scientist is specifically suspect, that he is separated in distrust from other careerists. There is also the testimony that "intellectuals" generally, artists, writers and critics, humanists, are themselves substantially anti-scientific. A genuine split exists, as is becoming widely acknowledged, between the scientist and the non-scientific intellectual, one of the important social schisms of the day. Therefore anti-scientism seems to be an explicit preju-

dice. And the public's jaundiced view of scientists definitely includes the physician. Some of the show pieces of antiscentism are found in the biological and medical fields. So this is, for us, It is as much a threat to health care of the sick as governmental interference with the freedom of practice or bureaucratic dictation of research or of the content of professional education. not merely an interesting cultural phenomenon.

There is, of course, a distinction in the popular reception of science and technology. Whatever the antagonism toward the former, its offspring, invention, is always honored. The "practical" aspects of science are gladly accepted, while its insights into the nature of man, the future of the universe, and the limitations of existence are minimized or denied. No one complains about modern plumbing, the conveniences of rapid travel, reliable food supplies, or antibiotics; on the other hand there is no unhesitating welcome for ideas that challenge the hoary beliefs of the race with regard to its rituals, its laws, its social structure, its cosmological tenets. This challenge of science to the prevailing orthodoxies is relatively new. Franz Alexander points out in "The Western Mind in Transition" that the initial scientific development after the Renaissance had no great transforming effect on society. The speculations of Galileo, Copernicus, Kepler, Newton, and Dalton, though they laid the foundations of modern scientific thinking, did little to change the lives of the people. Science was purer in its infancy; it was pursued for the sake of its own enlightenment. But toward the close of the 18th century, accumulated abstract knowledge overflowed into applications of every day use. Not until then did the dichotomy between science and technology in the public mind begin to take shape. It is sharp now. The folk heroes of science in America are inventors like Edison and Howe, or putterers like Burbank, not fundamental theorists like Willard Gibbs or Thomas Hunt Morgan. The inventor is mankind's benefactor; the true scientist is an ivory-towered eccentric. Dael Wolfle, in a report in 1954 on "America's Resources of Specialized Talent", underlined the public contradiction. "America is ambivalent toward the scholar. It wants rocket ships and atomic-powered submarines, a cure for cancer and bigger television screens — but it mistrusts the people who have the ability and education that lead to these de-

sired end products."

Science, in the sense that it is being employed here, it not a concept easy to define succinctly. James B. Conant's definition may be quoted as a base needing amplification: "Science is an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful of further experimentation and observation." But further it involves the formulation of what is usually and casually called "scientific truth". This phrase also deserves a moment's rumination, for it has precise meaning to the scientist. For him, truth, as Homer W. Smith has said, is "opinion demonstrated by test to correspond with nature." Finally science is often equated with scientific method, which is also difficult to pin down. In a philosophically surer past it was assumed to correspond to induction as opposed to deduction. This is simplistic. Scientific genius is often intuitive, as witness the insights of Newton on seeing the apple fall, of Kekule in visualizing the benzene ring, or of Freud when he pierced the meaning of dreams. In truth there is no one scientific method. There is an interrelated congeries of approaches agreeing in the final resort of check against the discernible facts of nature. It is perhaps most accurate to construe scientific method by describing its attributes. It is characterized by observation and experiment, by the verification of inference, by tentativeness of conclusion, by constant reference to natural reality, by alertness for personal or instrumental distortion, and by complete abhorrence of dogma or untestable revelation, at least in the field in which it presumes to operate.

When one plunges into the murk of antiscientific thinking, he quickly becomes concerned with the benighted intelligent, the influential leaders of thought. The antiscientism of intellectual groups is science's deadliest poison. However, the superstitions of the ignorant and uneducated are not to be lightly dismissed in an age of popular information and total franchise, an age when new nations spring up in Africa and Asia that have little indoctrination in the Western tradition, which has been the atmosphere of modern science. This is not to scoff at other traditions; it is merely to point out that they have not given native origin to the scientific society that is the inevitable shape of the future. We do therefore have to take into account the sus-

picious and fears of the uneducated masses, the feelings that always attach to what is unknown and unknowable, the esoteric lore of an exclusive coterie. There is also the persistence in human thinking of a substratum of magic, basically animistic, which appears in the form of prescientific and irrational primitive rituals, which began, as any ritual does, to reduce anxiety in situations beyond empirical control. Water-witching would be an example of this kind of magical thinking, or, in the medical field, folk cures like food fads, the honey and vinegar of recent Vermont notoriety, the nonsense of naturopathy, and the hundreds of household remedies that technically are vestigial remnants of the sympathetic magic of the childhood of the race.

The peril to science does not all arise from without, from a distrustful populace or from scientifically illiterate literati. There are also weaknesses within the citadel, for which scientists are themselves accountable. Among them is a too ready acceptance of governmental secrecy, a concealment of scholarly discovery that probably risks rather than protects national security. It can be convincingly argued that the loss of momentum when new findings are not circulated to quicken research far outweighs the hazard of priming a competing country. The belief that we have lost ground in the nuclear race because spies have stolen our techniques for foreign powers is dubious. It is a reflection of a chauvinism that assigns genius only to Americans. In fact, in the 20th century the idea of a "scientific secret" is preposterous. Along with reluctant approval of censorship of scientific publication has gone tacit acquiescence in a primarily military aim, especially for the physical sciences, but also to some extent for the biological specialties. Another countercurrent in the stream of science is the deficiency in interdisciplinary reconciliation, not only remissness in establishing coherent connections between science and other scholarly pursuits, but also the lack of communication between the various fields of science. And finally there is still a failure adequately to educate the public, in spite of magnificent efforts on the part of some scientists and some of the professional science writers of the press.

When one tries to categorize the specific evidences of antiscientific thinking, the most striking and saddest demonstrations are afforded by the learned, the very individuals on whom our

gifted children rely for vocational guidance. This is the reason why the American Association for the Advancement of Science in an official editorial in *Science* by Dael Wolfle marked "a retreat from science", manifested by a dwindling number of students choosing scientific careers. The same tendency was noted more recently by Conant in his studies on American secondary school education. First, there is the frequent gullible swallowing of pseudo-science or the irrational by these leaders of intelligent opinion. One can recall the astonishing notions of Immanuel Velikovsky as a horrible example. This man, a physician and psychoanalyst, published a book, "Worlds in Collision", in which divers myths of ancient and biblical history were explained by a fantastic hypothesis of very un-Newtonian antics on the parts of the planets, which were presumed in the past to have gone merrily crashing about our solar system. Not only was the volume brought out by a reputable publisher of text-books (MacMillan) but chapters were printed in *Harper's Magazine*. The reviewers greeted this masterpiece with loud huzzas and yowled about "freedom of opinion" when scientists mildly protested giving currency to such hogwash through the media of a respected book house and an upper middlebrow periodical. Apparently any kind of arrant nonsense passing as science should have the right to publication with the warrant of an established imprint. It would be only just to extend the same guarantee to writers of admitted fiction.

In the same year equal enthusiasm was manifested over Kenneth Roberts' book, "Henry Gross and his Dowsing Rod", published by Doubleday, which also took over Velikovsky when MacMillan shucked him. Even Homer nods, but Mr. Roberts, a good novelist, had cataplexy. This was an almost incredible but entirely serious espousal of water divining, and again the scientific illiterates were pale with wonder, not having the background to smile at an old folk ritual. At about the same time the flying saucer hysteria struck the country, with Frank Scully's "Behind the Flying Saucers" as its first authoritative text. This was less of a literary sensation but more of a popular one. It was seriously reported in *Life* (according to Roscoe Pound the magazine for people who cannot read). And it was on one occasion defended by a prominent

conservative United States Senator. Even yet faith in flying saucers lives on, though it has been thoroughly dissected by scientists, just as Henry Gross and Immanuel Velikovsky were. In recent months Lawrence J. Tacker of the United States Air Force, in a book entitled "Flying Saucers and the U.S. Air Force", has again tried to prove to an open-mouthed public that there are no little green men in the stratosphere. But — particularly in California, where else? — there remain those who swear by space ships, and some who bear witness to their trips in Venusian rockets.

Some of the antiscentism of the leaders of opinion is less blatant than that exemplified by these cited infatuations. It is often disguised and probably unconscious. The fashion in which certain circles constantly inveigh against "materialism" is perhaps a sign of such an unrecognized antiscentific attitude. Science is bound to be a materialistic way of thinking since it can deal only with the concrete and measurable, and rigorously confines itself to operational definitions. A stand against "materialism" can also be nicely meshed with anti-Communism, since the latter is "materialistic," and hence, by the logic of a McCarthy, a scientist is a suspect Bolshevik. The jeremiads against the creation of nuclear weapons and other instruments of mass destruction may have the same unconscious origin. The outburst of antiscentism at the close of World War II is certainly related to anxiety about the terrors science had wrought. Behind such lamentations lies the dread of an old theme, Frankenstein and his monster, the fear of the demented scientist who will create what society cannot control. Actually he becomes the scapegoat when society creates what it cannot itself control.

Such apprehensions plus the desire to please every minority must lie behind political antiscentific actions. Sometimes there is a patent desire to force the abstractions of science into conformity with the political line. The classic case is Lysenkoism in Russia, where modern genetic theory was turned upside down to correspond to the Marxian creed of equality. We have never reached any such nadir in these enlightened United States, but ten states exempt students, on religious grounds, from courses in hygiene in the public educational institutions, and the New York State Board of Regents once ruled that there could be no questions in high school biol-

ogy examinations on the germ theory of infectious disease, out of deference to the adherents of Christian Science. These are illustrations, not isolated aberrations, and the logical conclusion would seem to be that all students can be prevented from learning anything to which a crackpot handful of objects, especially if the Cross be raised to cast its protective shadow on the objection. In the same class but of lesser degree than Communist Party canonization of Lysenko was the peremptory dismissal in 1953 of Allen V. Astin as Director of the Bureau of Standards by the Secretary of Commerce, Sinclair Weeks, because Dr. Astin had had the temerity to stand by objective evidence of the worthlessness of a commercial preparation, a storage battery additive, and had not, in the unique reason advanced by the Secretary, given enough attention to the "play of the market place". In an age that judges worth by advertisement, a product is not what it can be proved to be but what Madison Avenue says it is and the hucksters can sell it for. A business society, perhaps every modern society, demands that each citizen be a partisan of the accepted gospel of the day and will not freely tolerate even dispassionate and factual opposition. Perhaps behind the inquisitions into which some congressional investigations of teachers and scientists have degenerated lies the same dark and insensible misgiving that scientists do not see the world as other men do and that they are the instruments of frightening change. Thus the panicky impulse that they had better be smeared with the Red brush, but quick.

Franker than the petty contrariness of politicians is the defiance of writers and artists to science, creating the dichotomy that recently Sir Charles Snow has so vigorously called to attention. Probably behind this recalcitrance is the thought that prosaic science will destroy or impair the importance of the poetic vision, echoing Keats that science would "conquer all mysteries by line and rule". The literary opponents of science include some of the greats — Browning, Poe, Cowper, Tennyson, Wordsworth, and in the modern era Aldous Huxley, T. S. Eliot, and D. H. Lawrence with his return to the primitivism of Rousseau, to mention a random few. George Gissing wrote at the end of the 19th century, "I hate and fear science because of my conviction that, for a long time to come, if not forever, it will be the remorseless enemy of mankind. I see

it destroying all simplicity and gentleness of life, all the beauty of the world; I see it darkening men's minds and hardening their hearts; I see it bringing a time of vast conflicts, which will pale into insignificance 'the thousand wars of old', and, as likely as not, will overwhelm all the laborious advances of mankind in blood-drenched chaos." I am sure that some of today's Cassandras would hail this as prophecy and will treasure the quotation. They can find it in the "Roycroft Papers." Fifty years later E. M. Forster was still deploring "the implacable offensive of science." He sighed, "We cannot reach social and political stability for the reason that we continue to make scientific discoveries and to apply them, and thus to destroy the arrangements which were based on more elementary discoveries." But science has had its literary proponents too, just as great, Dante, Chaucer, Swinburne, Meredith, for examples. And De Tocqueville admired in America the very certainty of the progressive advance toward the new that Forster bemoans. Today, however, there is surprisingly little evidence of literary effort to understand science, to interpret it in meaningful forms of the time, as for example Dante did in the 14th century. Sir Charles Snow is almost a throwback to a more eclectic tradition in bridging the gap between scientist and novelist by being both at once.

The literary advocates of widening the distance between art and science would seem to be in the majority, if one dares inference from misleading reviews of scientific books in the gazettes of the trade. Recollection is still sour of a notice in *Harper's* on Robert's opus about water-witching in which the reviewer was in open transports at the spectacle of science on the rack. The rationality of science seems to be taken as the enemy. The arts at times appear to turn away from reason, not only properly to give expression to the emotional aspects of existence, but also out of a perverse fascination with what Ben Lucien Burman has called "the cult of the obscure and the unintelligible". He was thinking of literature, but the same intended incomprehensibility invades modern philosophy, music, and even the plastic and pictorial arts. It is on visualization that man depends for his major grasp of reality, and the divorce of painting from the external world, as in dadaism or abstract expressionism, is the most stunning testimony of the separation of art from science. The gap is not narrowed by

the conventional current symbolism of fiction. Malcolm Cowley, writing on the new novelists and remarking on their pat figures notes the "scientist as prototype of evil." Then there is literacy scorn, no conciliator. On this flank lurks Gilbert Highet, philosopher and classicist: "The word Science itself has become a vague reassuring noise, with a very ill-defined meaning and a powerful emotional charge; it is now applied to all sorts of unsuitable subjects and used as a cover for careless and incomplete thinking in dozens of fields." This attack from ambush it the deadliest of all.

With all deference, the observer is also bound in honesty to note that both doctrinaire and deviant religions are another source of antisecularism. Old dogmas, like old soldiers, never die, and some of the historic orthodoxies have fought the advance of science on many fields, as recounted by the chronicler of those battles, Andrew D. White, in his classic, "History of the Warfare of Science with Theology in Christendom." Some ancient faiths still remain intransigent on certain points, but on the whole their catholic or ecumenical designs have made possible a reconciliation with science. More resistant are the fundamentalist and adventist sects that have arisen, at least in this country, with surprising rapidity in recent years. More subtle doubt of science has lately emerged in the most modern and liberal aspects of Christian faith. What is the scientist to think of Protestant neo-orthodoxy? One of its high prophets, Karl Barth, for example writes, "We ought to give up every thought that the care of the world is our care. For just this is the root and ground of all disorder." It is inappropriate for religion to belie science, for a fair case could be made out for the theory that the optimistic and hopeful philosophy of science arose from the Christian church, among the Gnostics of the 12th and 13th centuries, perhaps most convincingly from Joachim of Flora. These men looked for perfection on earth as well as redemption in heaven, pursued salvation through knowledge as well as through faith, and valued social justice as well as holy works. In spite of many attempts at harmony, the ancient conflict smolders. It is still a fact that proportionately few of America's scientists come from the religious colleges, a circumstance deplored by leaders of those schools and well documented for the curious in a book, "Origins of American Scien-

tists" by R. H. Knapp and H. B. Goodrich. Such observations probably help to keep some anxious to maintain unbreached the wall between church and state, lest sectarian demands water down scientific teaching in the schools. Norman Cousins in an editorial some years ago in the *Saturday Review* asked, "If religion becomes the yardstick for other courses of study what happens when the yardsticks clash? Isn't it likely that the moment the school doors give way to outside pressures the strongest pressure will prevail? Isn't there a danger that the religion of the majority could become dominant in education over the minorities? Is the domain of knowledge for all to be made subordinate to the domain of religious belief for some?" Science is knowledge, and religion rests on faith, not knowledge. The dualism is real, at least with the literal fundamentalist denominations. For the strongest kind of statement on the dichotomy I offer Australia's top atomic physicist, Marcus L. Oliphant, speaking before the Royal Society of New Zealand's Eighth Science Congress in 1954, attacking statements that cited science as a menace to the world: "We are told that Adam and Eve were driven from the Garden of Eden because they disobeyed the law and ate of the fruit of the tree of knowledge. It seems strange that the exercise of the greatest faculty with which man has been endowed should ever have been regarded as a sin. By a deliberate act, probably the greatest step he ever took, man chose knowledge, thereby setting himself apart from all living things and ensuring his ultimate dominion over the earth. What is called the Fall of Man should be known as the Ascent of Man."

All of this indicates the categories of evidence of a great distrust of and active quarrel with science on the part of the "intellectuals", taking that term in its usual usage to signify the artists, the philosophers, the theologians, the historians, the writers, and not meaning only those who deal with matters of the intellect, a more inclusive grouping which would certainly have to include the scientists, as perhaps the main modern proponents of the true life of scholarship. The creed of the "intellectuals" is compressed into Jacques Maritain's disdainful contrast of "science" and "wisdom", and into statements like Toynbee's that "secularization of knowledge is beginning at last to be recognized as the supreme danger to the spiritual health and even to the material

existence of the body social of the Western World." The curriculum of intellectual antisocialism is the neo-Thomism of Robert Hutchins and Mortimer Adler, and its canonical texts are the "100 great books", in which wisdom is fossilized for all time. Similarly in the lower reaches of the school system too, many authorities note a decrease in the number of students enrolled in scientific courses. This may recently have been reversed with the recognition of the need for technical training in the interests of national defense. But note; the reaction occurs under threat, not out of any real conviction that science is the road to understanding of a modern world. The offerings of our academies of learning suggest the opposite. As one angry critic, Historian Arthur Bestor of Illinois, exploded after reading a report in his home state, it is suggested "that the schools can serve the nation in its present hour of peril by asking its students to 'make the studies of how the last war affected the dating pattern of our culture.'"

Some of the gaudiest and to a doctor most spellbinding specimens of anti-scientism are to be found among the adherents of crackpot medicine. The seeker will uncover fantasies that would be uproarious, if each did not mean pain and tragedy for the sick. They are endless, from the psycho-nonsense of Phoenician L. Ron Hubbard's "Dianetics", to the equal nonsense of Wilhelm Reich, who, to even things up in the state, lived in Tucson for a while and who concentrated the orgasmic power of the universe in a box, into which the true believer could step, with understandable benefits. While in Pima County he spent spare afternoons breaking up the clouds over the Catalinas by the sheer strength of his gaze. Arthur Koestler, certainly a respectable intellectual, was once a devotee, and only recently the late delusional works of the deceased Dr. Reich, who before he became psychotic was responsible for real advances in the theory of character neurosis, are receiving favorable notices in the reviews. No one can list all the quacks. Here we are less interested in their remarkable notions than in their backers. For example the Koch "cancer cure" was supported by Senator Langer, now dead, while the Lincoln treatment for multiple sclerosis was a pet of the late Senator Tobey. The "vibrillum" fraud, in which a magic pellet costing only a few modest thousands was hung around the neck to ward

off disease, found a sucker in Mayor Kelly of Chicago, before his death. This modern scapular turned out to be a brand of rat poison. I hasten to assure that I do not mean to infer that the cures killed these gentlemen. I take these examples from those who have been called to their Maker merely to avoid needless testing of the protection of *Arizona Medicine's* libel insurance. Finally the epitome of medical indorsement has perhaps been achieved by Gayelord Hauser's diet, which has been given the palm by Greta Garbo, Paulette Goddard, and the Duchess of Windsor, lovely ladies all. But perhaps the greatest persuader, the most enchanting faker since Barnum, was John R. Brinkley, who made goat glands famous, who ran for governor of Kansas in 1930 and would have been elected if he had not started his campaign too late to get on the ballot and therefore had to depend on write-in votes, and who was even considered as a possible Presidential candidate. If Morris Fishbein never did another thing for medicine, he was the final nemesis of Brinkley. So goes the roster — palmists, sleep teachers, crystal-gazers, astrologists, sexologists, mountebanks and impostors of every variety imaginable and unimaginable, each with his devoted and defrauded following. C. E. Boyd in his book, "The Cult of Chiropractic" notes that there are 34 chiropractic schools and that their graduates are licensed by 43 states, Arizona of course among them. At last count we had 214 of these healers, fortunately fewer than the California record of 5,319. Richard Blum in "The Management of the Doctor-Patient Relationship", a book commissioned by the California Medical Association, says that 70 out of every hundred patients feel free to go to chiropractors and charlatans. And that is quite a figure — even for California.

If these are some of the credentials of anti-scientism, a few of the straws that float in the wind of a spirit antagonistic to a scientific era, what are some of the reasons for the anomaly? There must be many; like any neurotic symptom, antisocialism is probably "overdetermined" and owns more reasons than it needs.

First of all, there would seem to be actual ignorance, in part due to poor science reporting by the newspapers and magazines and in part due to inadequate popularizations of science in the books that reach the general public. One recognizes at once such exceptions as Rachel

Carson's inspired descriptions of marine biology, perhaps Paul de Kruif's books on medical discovery, now a little old, some of the recent volumes on archeology. There are not many. Scientists are not doing the educational job the public deserves; perhaps it is not theirs to do. They have other and more important responsibilities. But good popularizations will be well received, and will lessen prescientific and antiscientific thinking. Along with this failure goes poor teaching of the sciences in the schools, as underlined by Conant's writings. Part of this is probably because of inferior training of elementary and high school teachers in their subjects, in the teachers colleges and the departments of education of our universities, where the emphasis has been on puerile method and little on mature substance. Furthermore, as has been pointed up by statistical surveys, the talent of persons going into teaching has not been nearly as high as that of those going into other professional fields. It is understandable that as a group teachers have little grasp of science and therefore little enthusiasm for it. By the time their students reach college the teachers have swindled them; their interests have been fixed in other channels.

Another barrier to popular acceptance is the recondite nature of modern science. It is difficult to comprehend, sometimes even to formulate. Its simplifications are sometimes unfortunately misleading to the extent of being actual perversions of the point. Concepts must be made unexact in this age of the soft sell, and the understanding of mathematics and the sciences is not easy work. Therefore the fatuous paraphrase is easily marketed in the place of the genuine article, as Mark Twain used to call it. There are undeniable obscurities of technical language and vocabulary. Scientists have difficulty enough in communicating with their fellows in other branches, let alone with non-scientists. Picture a specialist in enzyme chemistry trying to describe his research to a worker in the field of Slavic linguistics. Picture an entomologist trying to talk meaningfully with an astronomer. Even in closely allied specialties verbal contact is tenuous; the psychoanalyst, for instance, has trouble in finding common ground of discourse with the average physician or even with his associates in neurology and general psychiatry. Some modern scientific abstractions can hardly be explained in words, in analogies, even

in visualizations. Much of modern physics can be represented only in mathematical terms and the field is closed to those who are not indoctrinated in the rigors of mathematical logic.

There is further reason for antipathy to science in the unpalatability of some of its conclusions. Man has historically held an anthropocentric view of the universe, a comfortably exalted idea of the consequence of his species and his planet. The first blow to his ego was the verdict of Renaissance cosmography that earth is not the center of the heavens, not even the hub of the solar system. This was the basic cause for the persecution of Galileo. Next came the Darwinian disillusionment, the echoes of which still ring into our era, that the human is not a fallen angel but a risen ape. And finally the cruelest wound was inflicted by Freud, that man is not captain of the vessel at all, but the observer and victim of the storm blown by the wind of the unconscious on the sea of environment, sitting dizzy in the crow's nest and lucky if he can even glimpse the shoals of shipwreck ahead. There are other distasteful lessons of science. For the democrat of Western civilization the fact of inherited inequality does not fit the egalitarianism of the times. For the millennialist in most men there is agony in the scientific certainty that our world is foredoomed to extinction through inexorable processes that lead to entropy. We identify with an indestructible earth, which gives us confidence in personal immortality. This is the probable basis for the tremendous hold on the popular imagination of the promise of space travel, for it encourages hope in the escape of the race to other and younger worlds when this one has been done in by the inevitable results of the second law of thermodynamics. And disagreeable are sociological speculations about the future of mankind, long before extinction, of the direction of the relentless march of humanity's particular historical destiny. There is, for example, Roderick Seidenberg's terrifying vision in "Post-Historic Man" of the crystallized society, like that of ants or bees, with man "entombed in a perpetual round of perfectly adjusted responses."

The extension of science into the social sphere and the rise of the social sciences account for further antiscientism. It is all right within limits to talk about control over natural processes of one sort or another, but it is depravity to tamper

with political processes, psychological prejudices, or economic faiths. Dearly held social preconceptions are endangered by scientific insight, and their defenders strike back hard. Witness the mockery with which professors were portrayed in the public press during the Roosevelt years, when the mortar-board became the contemptuous symbol of egghead government. We may see the same with the Harvardian administration of President Kennedy. At present there is of course a large unscientific content in the social sciences, yet to be weeded out, and this makes them a ready target for derision. But this is excuse rather than cause for the attitude of their detractors.

More fundamentally there is distrust of the mysterious, distrust of what the ordinary man does not know and does not have the education or intellect to grasp. The scientist is the descendant of the shaman and the medicine man, the magician and the priest, and he is feared for his special knowledge, his powers over man and over nature. Society has always sought to restrain the man of the elite. It will still not give the scientist the position in the management of the affairs of mankind that his accomplishments demand. The accusation made against the alchemist still is heard today, even in intellectual circles, that science interferes with natural processes. On a sophisticated plane, it may be said that antibiotics save lives but create population expansion. This is true, but only because science is prevented by social prejudices from applying the remedies to curb the increment in our numbers. On the political level there is apprehension that science may overturn the accepted nationalistic world order. Science cannot be identified with narrow patriotic cause; there is no American science or Russian science, and scientists are bound to be internationalists. This makes them at once suspect by the reactionary politician, be he Joe McCarthy or Nikita Khrushchev. The traitors, a Klaus Fuchs or Allen Nunn May, then turn the anxious men on all scientists, on the Oppenheims or the Paulings. Science stands for freedom, and the intensely nationalistic state cannot adopt unrestricted freedom.

There is the associated alarm that science may become, in Hogben's title, "The New Authoritarianism." Humanists particularly point with trembling to widespread uncritical acceptance

of technology. One confirmation of this nervousness was the acceptance in literary circles of Anthony Standen's book, "Science is a Sacred Cow." Among the philosophically minded there is dislike of scientific pragmatism, of the doctrine of utility in place of the absolute, of insistence on the question "how?" rather than the question "why?" The critic professes that science worships what will work, and that this leads to the political ethics of a Hitler or a Stalin, the frank doctrine that justifies the rule of force in human affairs. This misgiving is seen in the conclusions of the study made by Mead and Metraux, and in a similar report from Purdue University in 1956. In the latter 27% of high school students felt that scientists were willing to sacrifice the welfare of others to further their own interests, 14% felt there was something "evil" about scientists, and 9% felt that one cannot be a scientist and be honest.

There is very direct opposition to science from older traditions, whose hold on people is threatened by the newer knowledge. Religious suspicion has already been mentioned as an evidence of antisecularism; here it may be examined as a cause. The orthodox theologies have ultimately adjusted to scientific advances, but science is secular in its origins, not religious, and it seems always to have to battle past the entrenchments of dogma. Science will not concede any doctrine, no matter how hallowed its testimonials, without either proof or the acknowledgement that it is outside the scope of scientific inquiry. Religion on the other hand has not seldom hinted that the decline in ethical standards is due to the abandonment of ancient manners under the impact of modern learning. The scientist is in certain eyes a modern Faust, and equally condemned for the temerity of his curiosity about God's handiwork. A recent off-Broadway play, "A Banquet for the Moon," concerns a nuclear physicist who sells his soul to the Devil. *Quod erat demonstrandum*. Aversion to scientific empiricism is another aspect of bitterness from the older tradition, and we see the philosopher turn away from science to intuitive avenues, existentialism, Zen Buddhism, or obscurantism of various sorts. One must not underestimate the depth of the literary and intellectual alienation from science. There is, as John Q. Stewart, Princeton's great astronomical physicist, once said, "a latent opposition between

those persons having a humane education and those with scientific training." Some evidences have been cited; here are possible reasons. There is the simple panic that science will destroy the traditional values of literature and the classic studies. The humanist looks on the scientist, in Whitney Griswold's term, as "a technological illiterate." The scientist in turn looks with equal impatience on the humanist as a scientific illiterate. And it can be confined that the average writer or artist has a monumental ignorance of science. He would scoff at the scientist who had not read Shakespeare, or Cervantes, or Molière, but he would be blank if asked to identify Boyle, or Napier, or Paré.

Surprising is the amount of prescientific thinking discoverable in even well educated persons, another determinant for antiscientism. In 1953, Wayne Dennis of the Department of Psychology of Brooklyn University, published a paper that proved without doubt that 33% or more of college and graduate students in psychology had purely animistic ideas, as shown in answers to questions designed to elicit beliefs that life exists in inanimate objects. It is well known that all primitive peoples think animistically, but it is a little startling that students in the universities, the very reliance of our society, have similar superstitions. Apparently, in the absence of specific instruction on the distinction between the animate and the inanimate and the dependence of consciousness upon a nervous system, educated persons in a Western culture maintain formulations about nature that are identical with those of children and savages. This means that to many people, supposedly enlightened, the universe still runs on magical principles. George R. Price, in an article on "Science and the Supernatural" in which he attacked extra-sensory perception, provided a most succinct summary on this point. "The essential characteristic of magic is that phenomena occur that can be most easily explained in terms of action by invisible intelligent beings. The essence of science is mechanism. The essence of magic is animism."

The popular rejection of science may result also from a failure to be in tune with the temper of the times. Technology is, but is scientific thought? The defining emotional fact of Western society at least would seem to be anxiety, with the security of traditional ways lost, the comfort of personal religion reduced, and the very con-

tinuity of civilized life threatened by unspeakable horrors. The scientist, as the wise man of the day, becomes the scapegoat. People always personify their worries. In ancient times the prophet or the witch doctor paid the price when prediction failed, when the rain did not come, when enemies triumphed in the field, when the queen failed to bear a son. Today the atomic physicist is blamed for hurricanes or high tides that may coincide with his explosive experiments; the dentist who advises that fluorides be put in drinking water is held accountable for a variety of ailments; and the surgeon is threatened with suit every time the issue of operation is not perfect. The good father must always solace the puling infant. Of all scientists no one suffers more than the doctor from the exaggerated assumption that there is now a cure for all of man's ancient ills.

As the penultimate of the grounds for antiscientism, consider the shibboleth of the common man, which does not adapt well to the strict rigors of science. Nothing which does not meet the understanding of Everyman can be admitted ungrudgingly to his century. Science cannot always descend to his comprehension. The Populist reforms, education for all, and the enfranchisement of the masses are not steps that any of us would take back, but popular cultivation has hardly yet proceeded to a point that allows full familiarity with science by the man in the street. The outcry against the bowdlerization of modern schooling is now so loud that one cannot hear the words. It does seem likely that it is feeling its way slowly toward proper scientific content. In the meantime no one has put the case better than Harold Dodds of Princeton did in 1952 when he said American education's "greatest weakness has come from playing down academic scholarship in favor of universality at a level of intellectual aptitudes adjusted to a common denominator." Science cannot be taught that way.

A last surmise is that the rapid change in the concepts of science do not add to the security asked by the age. Today's experiment is tomorrow's hypothesis and the outworn and purely historical theory of the day after. The "facts" of science are daily less positive. Einsteinian physics is less reassuringly solid than Newtonian physics, and, for those of epistemological fancy, the Heisenberg uncertainty principle makes categorical knowledge quite unattainable. Science

is no longer a set of immutable laws. "Science is what scientists do and think," said Herbert Bailey. Science is therefore not a satisfying faith, not a sustaining substitute for religion, not, in the common phrase, "the answer." Scientific scepticism and dogmatic finality are at least methodological opponents, and while Bertrand Russell can say that, "The desire for a fanatical creed is one of the great evils of our time," still the lonely and terrified human being will seek certainty for his life, whether in one of the time-tried worships or in one of the new convictions like Communism or nationalism. And his anxiety and insecurity force him to recoil from science and the tolerance and doubt on which it rests.

There must be a way to meet the problem of antiscientism. If there is not, it is hard to see how the world can long maintain its present civilization or perhaps even continue to lodge the human race. The future depends on the understanding and the wide use of science. In searching for rescue, any American is led to think first in terms of education, for education is the basis of the democratic presumption. It would imply initially the curbing of "miseducation of the public in scientific matters," a phrase for which I am indebted to Irene T. Jones of the Science for the People Foundation. She has remarked in a letter to *Science* that the public is flooded by all the means of mass propaganda with "scientific facts" about cigarettes, drugs, cosmetics, and the gods know what. These are the rhapsodies of the copy-writers, and the "facts" about aspirin and bufferin must be removed from the air waves and the TV screen, presumably through firmer action by the FCC and the FDA in the public interest, before the more prosaic reality can prevail. It is not infeasible to transmit scholarly actuality; educational television and radio stations are doing it, in fact right here in Arizona in the university stations. Next, teaching of science must progress backward through every year of formal instruction, college, high school, the grades. And it must not be the tasteless and tired pap that is usually offered. Science can be as lively as any other subject, or more so, for it is the high adventure of the era. Boys dream about space travel, and this captivation should be easily converted into excitement over science. Thirdly, scientists must contribute more, to the columns

of the newspapers and popular journals, on the lecture platform, in everyday contact with their fellows. The need to communicate information is now an inseparable and urgent part of the scientist's task. At the same time it must be recognized by the public and press that busy scientists cannot take the time from imperative commitments to answer in detail every hoax and humbug. In fact counterattack is intrinsically difficult because of the lack of any common fund of information or any common context of debate. The scientist who argues against chiropractic or flying saucers has to go wearily back to the beginning and erect the factual structure of observation and the premises that are accepted in scholarly logic. This is a laborious charge, and it cannot be done once a week to meet the absurdities that bubble up from nescience. The ultimate key lies in public sophistication about scientific matters, that will, as Sir George Thompson said in his presidential address to the British Association for the Advancement of Science last fall, honor the understanding of nature equally with control over it.

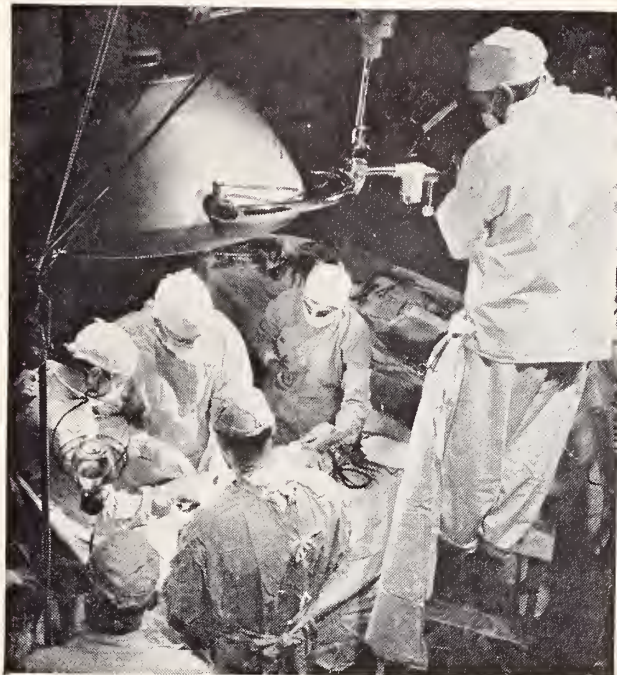
Some take the gloomy view that civilization is sliding into a new Dark Age in which dispassionate scientific thought will remain heresy, until that bright day when the hydrogen bombs end all speculation forever. But there is a more sanguine prospect, that the world is slowly becoming a more encouraging setting for science. Physicians believe this. They see people more alert to the benefits of scientific medicine, more insistent on lay information about it. They see the law turning realistic. For example, to balance the act in New York that sacrificed science high school examinations to sectarian bigotry there was the decision of the Supreme Court of Washington affirming the right of the University of Washington to require a Christian Scientist student to undergo a routine chest x-ray as a requirement for admission. Science has altered the public climate by grim integrity. Compromise will not serve, though it is being widely attempted, as though the observations of scientific inquiry could somehow be fitted to the preconceptions of older traditions. Continued emphasis on the irrevocable standards and the actual ideals of science is the main chance.

The doctor, the Arizona doctor, should play his bit part in this critical drama. Your Association, for example, should make it a perennial

item of its public to advise the mass media and the schools about that part of science, medicine, for which we have responsibility. A modest beginning has been made in the direction of such edification — plans for a radio program, the offer of physician speakers for public forums, career information workshops for high school students, overtures to consult with the education departments of the Universities and with the school districts of the State on the medical and science curriculum.

Fervor and vigor are needed, not only to accomplish our part of the mission but to co-operate with other scientists in achieving the acceptance of science by the public, its leaders, and its children, as the servant of human welfare and the informing spirit of the modern age. And the time is frighteningly short if science is to permeate popular thinking, overpower the barricaded prejudices of the centuries, and control the destructive psychopathy of its conscienceless offspring, technology. It must be science's destiny not to preside instructively over man's early incandescent tragedy but to save the world for his ultimate triumph.

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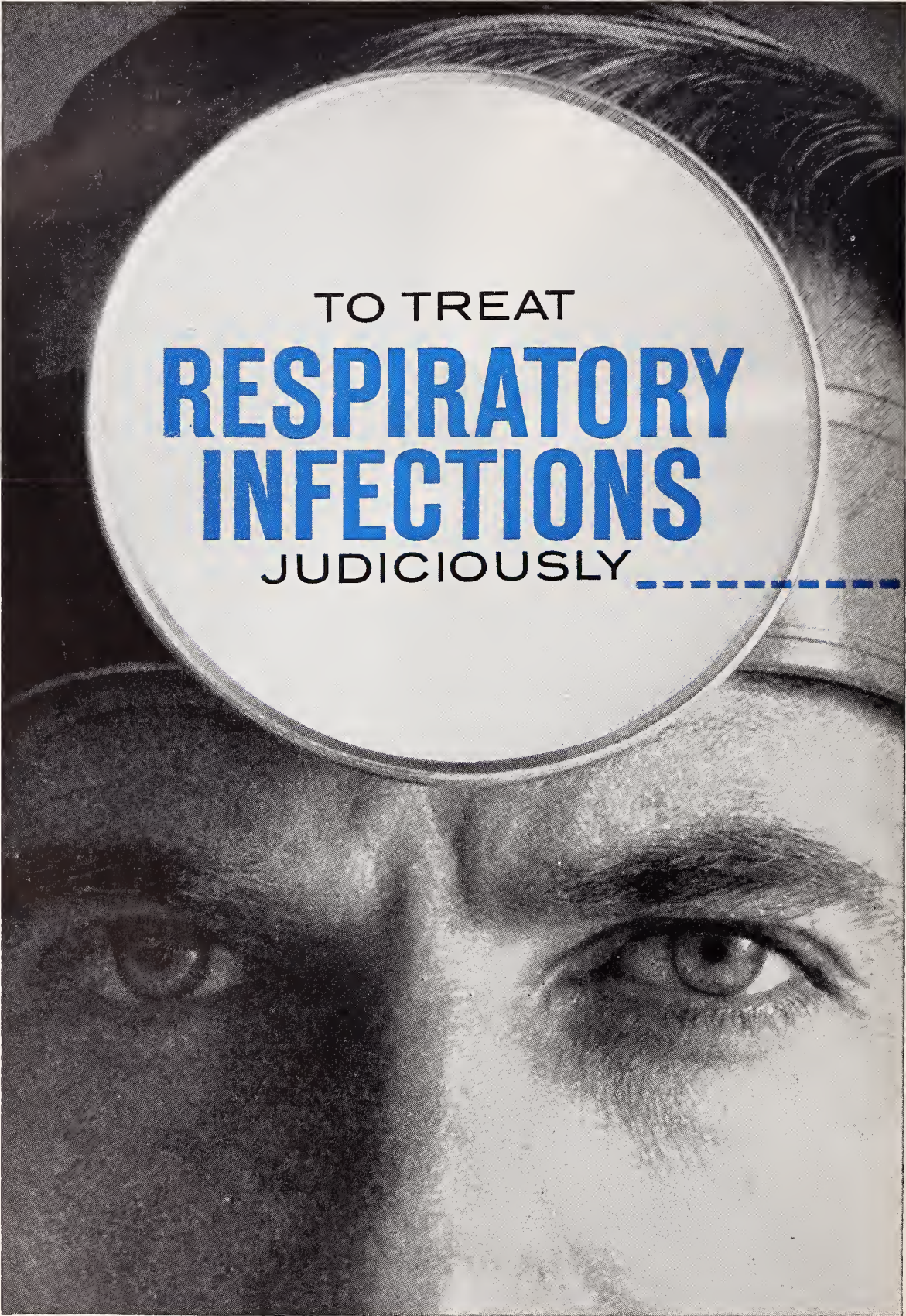
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1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases “Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease.”²

2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958.

arthritis “It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . .”³

3. Fernandez-Herlihy, L.: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.⁴ Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.⁵

4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases “Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult.”⁶

6. Overholser, W., and Fong, T. C. C. In Stieglitz, E. J.: Geriatric Medicine, 3rd edition, J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.⁷

7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.⁸ “Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes.”⁹

8. Duncan G. G.: Diseases of Metabolism 4th edition W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

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**References available on request.*

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various unhappy facets of modern medical practice. The smouldering sentiments burst forth in congressional committees, the ever-growing rash of malpractice suits in our courts, the urgency of certain uninformed people to force social medical "reforms" in our legislative bodies, and of course, the open public criticism of doctors as individuals and doctors as a profession.

The doctors don't like this, naturally, and the profession as a whole is loudly groaning over its loss of hoary sacrosanctity. The profession can point with pride to an illustrious decade or two of really fantastic scientific achievements. And herein lies the paradox. Why — in the face of obvious proved attainments, the addition of years to life expectancy, the conquest of numerous infections, the near-total control of maternal mortality, surgical techniques of startling ingenuity, a host of new drugs, public health advances of sweeping scope — is the venerated image of the physician being subjected to such widespread criticism? Why the increased murmurings of sentimental support for the image of the good old family doctor, with his crusty disposition and notable distaste of things modern? How often one hears of "Old Doctor Ipecac" who delivered me in Mom's bed with a bottle of chloroform and a few newspapers to catch the mess, then proceeded to treat the scarlet fever, puncture my eardrum, set the fractured elbow, take out my appendix, treat Dad's dropsy, and hold Mom's hand while Dad finally drew his last breaths (ensconced in the old brass bed.)" And you didn't get a bill for 250 dollars from him either!

This is a fine picture of a fine old breed — a group of dedicated men who did a job of work with the tools at hand, but our image of these men must of necessity be placed in the proper frame of reference. By present standards, your parent's old physician was about as effective as his white mare would be on the Los Angeles free-ways. His home deliveries with the chloroform bottle and newspapers resulted in a horrifying loss of life to mother and infant, as well as innumerable shattered pelvic tracts which left Mom dribbling urine and feces uncontrollably the rest of her life; that scarlet fever would very probably be stopped in its tracks today; the nasty elbow fracture possibly left the child with deformity; the appendix if ruptured, might very well have resulted in your becoming bug-

eyed, open-mouthed, huge-bellied dead from uncontrollable peritonitis; and Dad's dropsy might well have been called "dropsy" because Old Doctor Ipecac had no means of determining whether the swollen abdomen was a product of liver disease, heart failure, cancer implants or kidney shut down, and had little to treat it with if he did know.

This must sound exceedingly cruel and disrespectful, but it is not meant to be. The author fully realizes that his generation of physicians will be subject to the same criticisms by the next, and it is not a criticism of the iconoclast. It is simple progress. The job done by the horse and buggy doctor was profoundly more apt, able, and scientific than that done by his forebears of the 1800's, and so will the job be much improved in the future. It is a continuum of learning and productive research, of new instrumentation, of *concentration of effort*.

The public recognizes all the progress, and in their reflective moments, are deeply appreciative of their good fortune in being recipients of this progress. But we also live in an age of realism, an age of questioning demand, an age when many cherished images are being re-examined for their basics. The sanctity of no idea, industry, profession or person is quite as safe as it once was. The ivory towers are crumbling, and perhaps this is a good thing. How rarely do we now hear, "God willed it; so be it." We are rapidly growing into creatures of demand, no longer content with platitudes. Formal religions are modifying, educators are under the gun, the physicists and theoretical mathematicians have carried themselves into a philosophical-scientific morass which has not only produced public fear, but a degree of internecine warfare among themselves. Sex information and misinformation is as close as the nearest newsstand, and the topics of sex conversation between total strangers of opposite sex (at any two-martini party) would be enough to send grandma into irreversible shock. The staid old magazines which used to contain recipes for rye bread and a few sweet pastel romances, now are replete with articles ranging from "Techniques of Intercourse for Those over Fifty" to "Female Circumcision." Advertisements in the slicks make full use of the double-entendre; television shows ectoplasmic black brassiers wafting sensuously about the screen;

movie-makers dish out cannibalism, sex deviationism, rape, adultery, and even necrophilia; our softback publishers no longer bother to tantalize the reader with "d....! or f....!" in mid-paragraph, or even to dignify the more hairy descriptions by a Kraft-Ebbing resort to ancient Latin.

Lo let's face it.

This is our age of liberal realism and the gravamina of the charges are of our own making. We have aided and abetted the trend, perhaps not necessarily as individuals, but most assuredly as a collective group. We have held sole responsibility for the public image of the physician and the public image of the profession, and the fact that his image is something less than crystalline should be recognized, accepted and understood in its modern context. The wailing wall is a comforting place to moisten with our tears, and grandma's parlor a great spot for reminiscing among the crocheted doilies, but neither is very productive of positive thinking.

If we are under the gun there are reasons for it. If we are being publicly dissected and widely condemned, it is because we have changed as sharply as the milieu in which we work has changed. The advertising industry, P-R men, and politicians have repeatedly demonstrated the effectiveness of force-feeding an uninformed public and thereby creating an "image." We should, as doctors, be more aware than most, of the need for, and results of broad programs of public enlightenment (*viz*: Semmelweis, vaccination, venereal disease, psychoses, poliomyelitis, etc.)

Would it not be wise to dissect ourselves on a broad basis before the public scrutiny? Why not inform the lay public of the need for qualification among specialties, the virtues of modern intense specialization and the results it produces; the necessary but harsh limiting of surgical privileges to those who have been schooled to a degree capable of fulfilling those requirements? Would it not be wise to explain thoroughly the "Doctor's Union," the A.M.A., which to many lay people is a reactionary, money-grubbing, medical Ku Klux Klan? Let's tell people in plain language that doctors nowadays are primarily skilled technicians in the fields of applied physiology, biochemistry, pharmacology, soft mechanics and live carpentry. The soft-sell, the idealism, the glorified patient-doctor relation-

ship still exists yes, but not at all in its former brown, leathery study. It is a new and more brittle relationship, with sharper corners and finer lines — a relationship made less homey and personal by virtue of the new necessity for chrome trimmed ECG's, brain waves, crisp laboratory reports, thermocouples, hormone assays, needles, probes, machinery and cold steel.

We have grown into technicians by necessity. Let us explain in short order that as technicians in a fast society, we expect to be paid well for our knowledge and time. This society pays high for the other hallmarks of our present status, and would never think of not meeting the obligations of the second car, the color TV, the mortgage for the twin-johned rancher.

Also, and possibly of greatest importance, let's quit bragging complacently about the "best medicine in the world." We probably do practice, over all, the best medicine in the world, but this is a sad answer to the proponents of social legislation who would, and will, continue to ram medical legislation of restrictive, socialistic variety down our collective throats. Our approach to these people has been one of protectionism, self-interest and fearful arm-thrashing. Our political strategy has been anything but the recipient of public approbrium. Why don't we use our collective brains, with the help of public relations experts, and present loudly and forcefully, our own plans for indigent care, care of the aged, care of the low salaried retired? We have these plans, and though taxation for their proper support is a sensitive subject, it can be made apparent to all, that the taxation necessary for proper locally controlled facilities is a great deal less expensive than some of the broad socialistic schemes of the federal dogooders.

Let us explain in straightforward terms the code of medical ethics and by all means, the reasons for the necessity of such a code. It holds no Tong secrets — why perpetuate the lay attitude that it does?

Let's air the smudges on our face — talk about the fee gouger, the egotist who feels capable of treating all human ills, the irresponsible among us, the fight with the naturopaths, chiropractors, and osteopaths. Talk about the gross inadequacies of many of our hospitals and why the local politicians do not make funds available for improvement. We have several smears on

our hands, and they won't go away without hard soap.

Ghost surgery, the fee split, the unfair restraints placed on young qualified men in their efforts to find hospital beds, the great need for a lay person to really know whether their chosen physician is capable of a given procedure or not, the occasional doctor — druggist's illicit liaison — are there more?

Perhaps we must first be cruel to be kind.

But if our proud profession is to retain or regain its respected stature, albeit in a totally modern guise, we must accept the probings of our fellows as genuine barbs of honest debate. And more than that, we should respect the enlightened intelligence of our lay public and present to them, the current face (all profiles) of modern medicine. Then let the chips fall where they may. We shouldn't lose a thing.

Arthur R. Nelson, M.D.

WRITE YOUR LEGISLATOR AND . . . !

Again we are being bombarded by the American Medical Association for "an extensive letter writing campaign to every Congressman and Senator in the United States" to oppose the Forand type legislation that is coming before Congress.

One can hardly disagree with the development of opposition to this legislation. However, it is time that we admitted that the philosophy of the public and the legislators of this country is keyed to developing added security for the people of our society. So let us not act as the medical profession did in New Zealand where they now admit their legislators desired help. They wanted positive recommendations. They wanted to be "taken off the hook" and were willing to support a positive program originated by the medical society. The program was never forthcoming. The medical profession acted as we have, stating what they were against but not stating what they would recommend.

The admission that deficiencies do exist in American medicine with positive recommendations to correct these deficiencies by the medical society to our legislators will be accepted. Letters written merely to deride proposed programs can convert no one. They will be accepted by those who agree with us. They will only find

their way into the waste baskets of the men whose beliefs we are trying to change.

A positive, corrective program is essential.

Darwin W. Neubauer, M.D.

CENSORSHIP OF ARIZONA MEDICINE

The editorials of this publications do not necessarily reflect the opinion of the Board of Directors or the Executive Committee. They are the personal opinions of members of the Editorial Staff and certain guest editors.

These columns for text and editorial matter must remain open to express various viewpoints on all issues even when they are not in agreement with the administration of ARMA and at times even contrary to the course that many of us might like to see followed. When we reach the point where the editorial columns can no longer be critical of the actions as taken, they have little value. They should not exist to be a rubber stamp or to obtain unanimous approval of actions taken.

Possibly one would like to have that ideal situation of no differences of opinion. That does not exist and will not exist. The editor cannot condone the efforts made at limiting the material to be discussed in this publication.

Darwin W. Neubauer, M.D.

STAFFING AN ARIZONA MEDICAL SCHOOL

Comedian Sam Levinson said recently that a trip to a shoestore to buy the kids some shoes is quite an experience these days. "Every shoe salesman is a professor." A similar phrase is currently heard not infrequently in Arizona medical circles. It refers apparently to the impression left by the speech and proposed actions of some groups of physicians, mostly in Phoenix and Tucson. The implication is that a certain amount of lobbying is going on in order to assure the location of a future medical school in Phoenix or Tucson, depending on whether the professor is from Phoenix or Tucson.

Now, would it not be sensible to await the report of the Medical School Commission which is due to appear by midyear 1961? After all, they

may recommend that the school be in Salome or Eloy, and where would the professors be then if their plans have gone awry? The Medical School survey is being conducted on extremely thorough lines at a cost (a gift to Arizona) of almost \$140,000. Would it be possible to declare a moratorium on lobbying until the survey has been completed, and its recommendations can be maturely evaluated? Furthermore, in order to avoid an unseemly scramble for faculty positions immediately after completion of the survey, would it not behoove the Arizona Medical Association to propose in caucus, recommendations for procedure in choosing faculty, if and when a medical school is approved? Surely faculty will be chosen entirely on merit and experience and after appropriate written applications have been evaluated by a University Committee.

Sam Levinson says children of one year who go for a shoe-fitting (when he was a kid, he walked barefoot), have their feet x-rayed first, even though they don't have any bones in their feet.

Andre J. Bruwer, M.D.

MID-WINTER CLINICAL SESSION

Some months ago this column strongly encouraged a mid-winter clinical session in Arizona to combine the excellent programs of the Heart Association, College of Surgeons and the Cancer Society.

It is quite evident that each of these programs is an expensive one and to a degree competes with the other for attendance. The expense could be minimized and the competition eliminated by the combining of these meetings into one joint program under the auspices of The Arizona Medical Association.

Steps to accomplish this should be taken.

Darwin W. Neubauer, M.D.

TIME TO CHANGE

The reorganization of *Arizona Medicine* is now relatively complete. Considerable improvement is still needed, some added reorganization

is necessary, but all of these steps must be taken slowly and to a limited degree. They will not necessitate the extensive changes that were necessary to free use from our former contracts.

There has been some limitation of national advertising, yet the journal is a solvent unit of the society. This is true in spite of the necessity of paying off our former publisher and even though payment on accounts receivable runs two to three months behind payment on our own obligations. I believe the next year will see considerable improvement in the financial status of this publication.

May of 1961 will mark the completion of the fifth year of editorship by the present editor. The transition from our former publisher has been extremely difficult. However, with the reorganization now relatively complete, a change in editors is recommended, for there should never be the domination of this publication by one individual.

Darwin W. Neubauer, M.D.

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*MC GOVERN, J. P., MC ELHENNEY, T. R., HALL, T. R., AND BURDON, K. D.: ANNALS OF ALLERGY 17:915, 1959.

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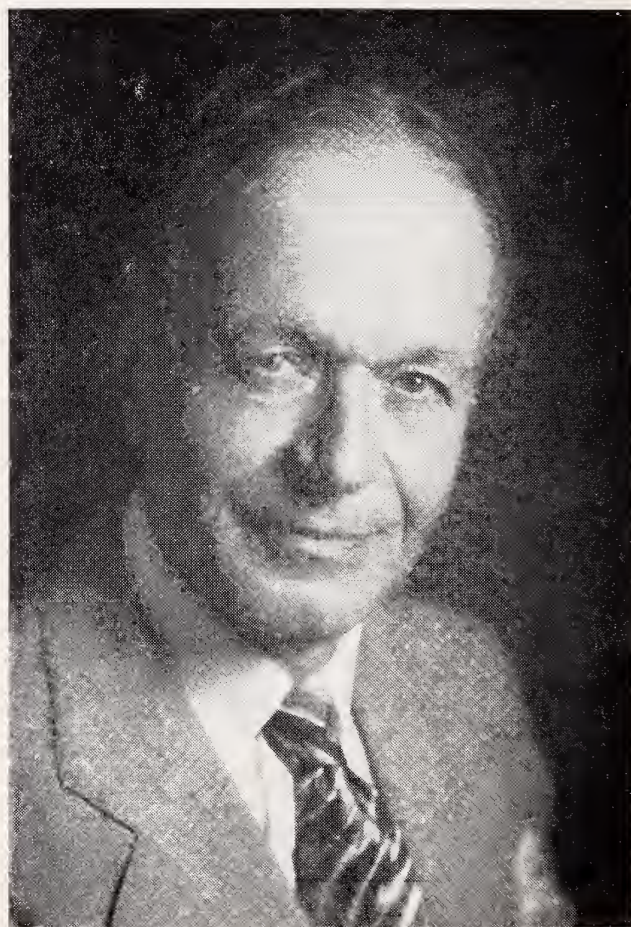
In Memoriam

Louis B. Baldwin, M.D.

1890 — 1961

Louis Beardsley Baldwin was born December 3, 1890 in Florence, Italy, under rather unique circumstances. His father was an M.D., William W. Baldwin, who had been advised to go to Florence, Italy, because of his health. In those days, the south of France and Italy were considered to be especially favorable climates for tuberculosis. Dr. William Baldwin practiced in Florence the rest of his life. His son came to this country and was graduated from High School in Binghampton, New York, and from Princeton University in 1914 and Columbia Medical School in 1919 with AOA Honors. He married Kathryn in 1922. Three children, Louis B., Jr., Frances, and Irving, survive him.

He was an intern at Presbyterian Hospital in New York from 1919-1920, a fellow in 1920, a voluntary assistant resident at Peter Bent Brigham in 1920-1921, and a resident at Peter Bent Brigham in 1922-1923. It was at about this time that the new medical school at Rochester was developing and Dr. Baldwin went to Rochester as Assistant in Medicine from 1923 to 1928, and was assistant Professor of Medicine from 1928 to 1930. He was attracted to Phoenix by the prospects of the Grunow Clinic, which at the time was being organized with the stated ideal



Louis B. Baldwin, M.D.

of developing a combined research program with medical practice. He moved to Phoenix in 1930.

In 1934 he went to Tucson as Director of the Desert Sanatorium, which later became the Tucson Medical Center. The plan of the Desert Sanatorium was to attract patients from all over the country, and Dr. Baldwin stayed with this institution until 1937, when he returned to Phoenix in private practice in internal medicine with offices in the Professional Building. He was a very busy internist.

During the next few years he became quite active in medical affairs in the Valley. He was joined by Dr. Ben Frissell, and later by Dr. Fred Coleman. In 1941-1943 he was President of the Maricopa County Medical Society.

The following comments were received from Dr. Ben Frissell regarding Dr. Baldwin: "I first met Dr. Baldwin in 1936, at which time he was Director of the Desert Sanatorium in Tucson. I worked as a Resident Physician under him for a year and was associated with him in Phoenix from 1938 to 1942 after he had resumed private practice here. Therefore, I knew him more intimately than most of his confreres.

"I remember him as a man of very fine qualities, both as a Physician and as a man; very artistic temperament and deeply sensitive to the needs of his fellow man. He was a learned scholar and always a student of Medicine; an excellent internist and a keen diagnostician. I do not think I have ever met or known a better informed physician or one with a better background of clinical knowledge and diagnostic acumen. His interest in Medicine and his energies in the practice of it were unlimited. His private library still stands as one of the most up-to-date medical libraries in the City of Phoenix, I am sure. It can truly be said of him that 'Medicine is a jealous Mistress', for he gave his all to the pursuit of his practice and the care of his patients."

"He was also a lover of good music, and in his later years his chief recreation was his enjoyment of his favorite records played through his Hi-Fi equipment which he assembled in his apartment. He had a deep appreciation of all things of beauty and had a fine collection of etchings and Japanese prints. His son, Gino, told me shortly after his death that on a recent visit to Minneapolis his father had dumbfounded a

well known art critic there with his knowledge of Japanese art, and that he had found in his father's apartment after his death, in addition to numerous medical books of latest edition, a 6-volume work on Japanese prints.

"His patients were always foremost in his thoughts. He was never too tired for a call to a patient in need. I can never recall hearing him raise his voice or show any evidence of displeasure with a patient, even though I have seen him in some very trying situations, to say the least. I think Dr. Osler must surely have had someone of this man's temperament in mind when he wrote "Aequanimitas". I can recall several occasions during my association with him when he counselled me very wisely in such matters and explained to me the wisdom of controlling a flare of temper, etc. I confess I have not learned these lessons too well, but I can never give vent to feelings of anger or a flare of temper without a fearful pang of remorse and a recollection of his wise words.

"He could spot a 'faker' in medicine in a minute. His ethics, his honesty in medicine were legend and he had no tolerance for those of our brethren who failed to live up to those standards.

"He shunned publicity and stayed out of the limelight in medicine and otherwise, but when he became interested in a project he gave it his all.

"Even during his last days, the depth of his character was apparent. He was one of the best patients I have ever known, and as a Physician that is a rare quality, and I think for the most part he was even then outscoring those of us who were attending him in diagnostic acumen. He resisted analgesics and narcotics through this illness to the point sometimes of misleading his physicians as to the amount of his pain.

"Even on his deathbed he was insisting that all the many greetings, etc. which had been so gratefully received were each personally acknowledged. Many time in the past years I have seen a postal card or a note from him written to a shut-in patient while he was on a much deserved and too-seldom-taken vacation.

"There are many of our members who did not have the privilege of knowing this man in his most active years, but those of us who did have that privilege will long revere him. Truly, to my

thinking, this man exemplifies the ideal clinician, and I know that to many, many patients he will always remain their 'Beloved Physician.'

Dr. Fred Coleman makes the following statements: "I was a young internist fresh from an Eastern residency. I found a guardian and a good friend in my two years association with him. A striking thing about him was that he accepted the challenge and responsibility that the faith of the patient imposed on him, perhaps more seriously than many physicians do."

It was during his term of office as President of the Maricopa County Medical Society that he spent many hours studying the problems of blood banking, and worked to establish the Phoenix Blood Bank. It was his inspiration that created the organization which was largely controlled by and operated by the members of the Maricopa County Medical Society through elected representatives on the Blood Bank Board. He continued his interest in advising on Blood Bank affairs for several years after the war. He was a member on the staff of St. Joseph's and Good Samaritan Hospitals, a Fellow of the American College of Physicians, and a Diplomat

of the American Board of Internal Medicine, a member of the Maricopa County Medical Society, the American Medical Association, the American Academy of Allergy, the American Diabetes Association. He was a member of the Phoenix Clinical Club and the Pacific Inter-Urban Medical Club.

He gave his undivided attention to a scholarly approach to the practice of medicine. His patients constituted not only a human problem, but also he was forever interested in the causes of disease and the unknowns on the fringe of medical knowledge. His retentive memory and concentrated interest resulted in the practitioner of medicine who reflected high credit to the profession. His patients tended to hold him in an ultra-high respect. Because of certain physical frailty, he was enabled at times to enter into a sympathetic communion with his patients, which was unusually productive of good results in terms of medical therapy. He carried the marks of his early academic teaching training throughout his career. His memory adds dignity to the human species.

Howell Randolph, M.D.



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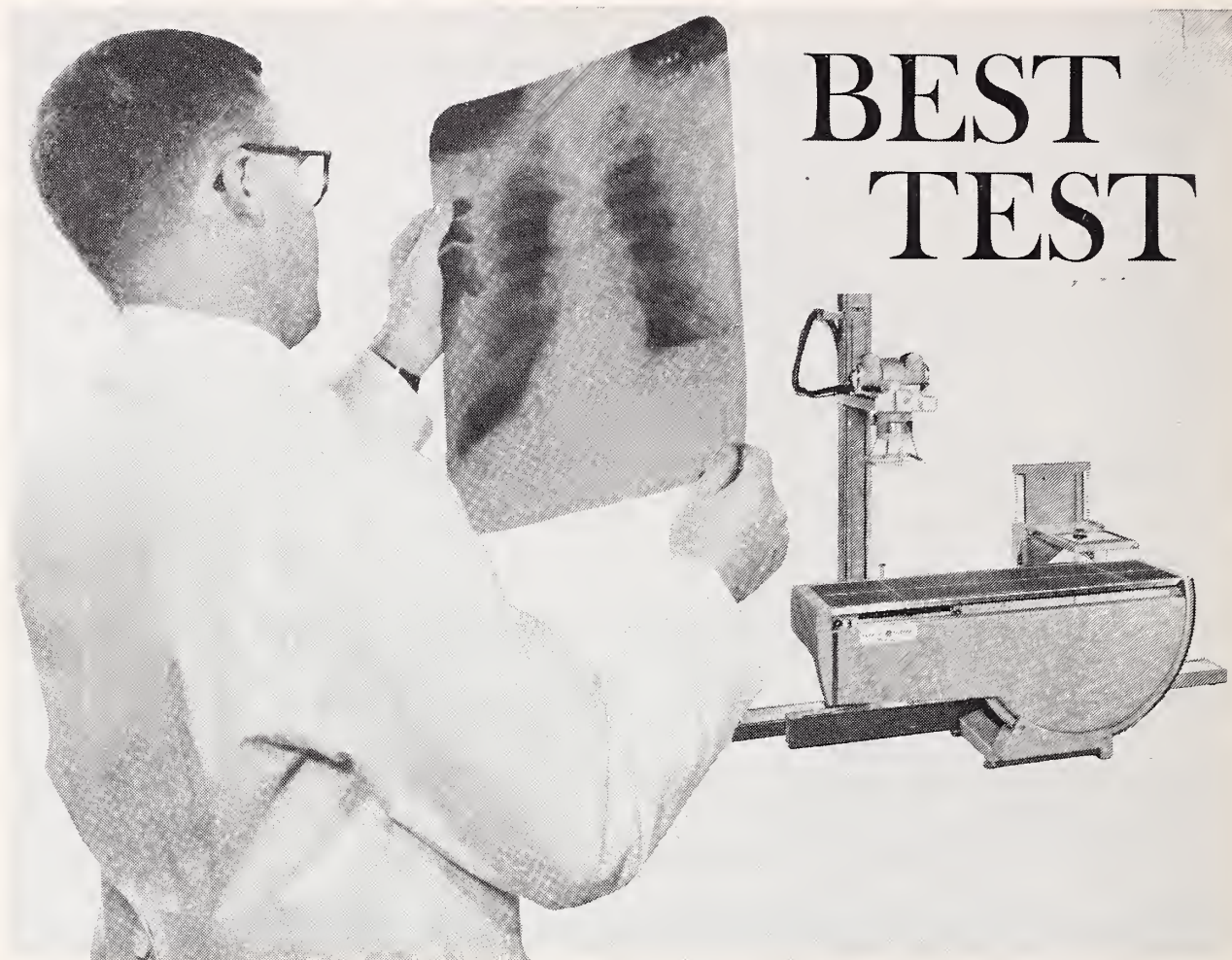
for **SAMPLES** and complete reprint of Weissberg paper, please write . . .

1. Weissberg, G.: Clin. Med., June 1960.

2. Spoor, H. J.: N. Y. St. J. Med., Oct. 15, 1958.

*patent pending
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degrees. And McGavack,² in a comparative tabulation of steroid side effects, indicates that triamcinolone does not produce the increased appetite, insomnia, and psychic disturbances associated with other newer steroids.

ARISTOCORT can thus be advantageous for patients requiring corticosteroids whose appetites should not be stimulated, and for those who are already overweight or should not gain weight. Likewise, ARISTOCORT is suitable for the many patients with emotional and nervous disorders who should not be subjected to psychic stimulation. Furthermore, ARISTOCORT Triamcinolone, in effective doses, showed a low incidence of side reactions and is a steroid of choice for treating the older patient in whom salt and water retention may cause serious damage.²

References: 1. Hollander, J. L.: *J.A.M.A.* 172:306 (Jan. 23) 1960. 2. McGavack, T. H.: *Nebraska M. J.* 44:377 (Aug.) 1959. 3. McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 (Dec.) 1958.

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. Dosage should be individualized and kept at the lowest level needed to control symptoms. It should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

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Topics of Current Medical Interest

One Hospital's Experience With Medical Indigency Of Elder Citizens

M. G. Wolfers

A member of the medical staff of Tucson Medical Center asked the hospital administrator if he might be able to estimate the burden imposed by giving service to the medically indigent in the elder citizen group. One week later the "estimate" was mailed to the inquiring physician and is reproduced herewith. Comparable precisely factual reports from other hospitals in Arizona could shed much needed light on a supposedly murky problem.

Dear Doctor:

As per your request of November 23, I have made a study of the experience of Tucson Medical Center with patients over 65 years of age.

SCOPE OF THE STUDY

The study was confined to the past ten months period from January 1, 1960 to October 31, 1960.

It consisted of an examination of all ledgers of in-hospital patients discharged during the period under study and the accounts of all out patients during the same period, as follows:

In Hospital Patients Accounts13,195
Out Patient & Emergency	
Room Visits11,300
Total Accounts24,495

In addition, all ledgers of accounts written off as bad debts during that time, accounting to several hundred, were examined.

All accounts of in-hospital patients over 65 were tabulated in the following manner:

Age	
Total Billed Charges	
Amount of Bill Covered by Blue Cross	
Amount of Bill Covered by Other Insurance	
Amount of Bill Paid for by Patient or Patient's family	

All accounts of Out Patients over 65 were tabulated as follows:

Age	
Sex	
Total Billed Charges, paid for in full.	

The accounts written off as uncollectable were tabulated in the same manner and in addition the amount uncollectable was recorded.

The time involved in the above study was over 80 man hours.

SUMMARY OF FINDINGS

The following is a brief summary of the results of this study. The references in the findings are to supporting schedules which are attached to the report and made a part thereof.

Billed Charges Patients Over 65 to Total Billed Charges

The billed charges to patients over 65 represented 16.77% of the total charges. See Schedule I.

Percentage of Patients Over 65 to Total Patients

Patients over 65 represented 8% of total patients. However, in hospital patients in this group represented 12.5% of the total in patients while out patients represented only 3.8% of the total out patients. See Schedule 2.

Mr. Wolfers is currently President of the Arizona Hospital Association and Administrator, Tucson Medical Center.

Schedule 1
TUCSON MEDICAL CENTER
Analysis of Patients Accounts
Jan. 1, 1960 to Oct. 31, 1960

	Total Billed Charges	Uncollectable Accounts	% of Uncollectable to Total
All Patients	\$3,173,888.32	\$62,022.51	1.95
Less: Patients Over 65	531,805.23	1,924.24	.36
Patients Under 65	\$2,642,083.09	\$60,098.26	2.27
% of Billed Charges Patients Over 65 to Total			16.77%

Schedule 2
Percentage of Patients 65 or Over to Total Patients

	Total Patients	Patients Over 65	% of Patients Over 65 to Total
In Hospital Patients	13,195	1,529	12.54
Out Patients	11,300	431	3.81
Total	24,495	1,960	8.00

Schedule 3
Percentage of Male and Female Patients Over 65 to Total Patients Over 65

	Male Patients		Female Patients		Total
	Number	% of Total	Number	% of Total	
In Hospital Patients	800	52.77	716	47.23	1,516
Out Patients	202	46.87	229	53.13	431
Total	1,002	51.46	945	48.54	1,947

Schedule 4
Billed Charges of Male and Female Patients Over 65

	Male Patients		Female Patients		Total Billed Charges
	Billed Charges	% of Total	Billed Charges	% of Total	
In Hospital Patients	\$294,198.62	55.94	\$231,731.89	44.06	\$525,930.51
Out Patients	2,391.92	44.12	3,282.80	55.88	5,874.72
	\$296,790.54	55.81	\$235,014.69	44.19	\$531,805.23

Schedule 5
TUCSON MEDICAL CENTER
Analysis of Patients Over 65 by Age Groups
Jan. 1, 1960 to Oct. 31, 1960

	In Patients	Out Patients	Total	% of Total Paid Accounts
65 to 69	650	211	861	44.29
70 to 74	430	123	553	28.45
74 to 79	254	42	296	15.23
80	33	16	49	2.52
81	22	7	29	1.49
82	22	4	26	1.34
83	18	8	26	1.34
84	11	4	15	.77
85	15	2	17	.87
86	14	4	18	.93
87	17	—	17	.87
88	14	2	16	.82
89	3	2	5	
90	3		3	
91	8		8	
92	1		1	
95	1		1	
96		3	3	
Total Paid Accounts	1,516	428	1,944	99.18
Accounts Written Off	13	3	16	.82
Total Accounts	1,529	431	1,960	100.00

Schedule 6
TUCSON MEDICAL CENTER
Analysis of Type of Payment of Accounts of Patients Over 65
Jan. 1, 1960 to Oct. 31, 1960

	Patients		Billed Charges		% of Total Covered
	Number	% of Total	Amount	Amount Covered by Third Party	
Blue Cross	682	44.99	\$229,962.86	\$198,646.18	86.38
Other Third Party	278	18.34	81,438.37	54,612.27	67.06
No Insurance	556	36.67	214,529.28	None	None
Total	1,516	100.00	\$525,390.51	\$272,672.06	48.15

Schedule 7
Analysis of Accounts Written Off In-Patients Over 65

	Total Bill	Paid by Third Party	% of Bill Paid by Third Party	Total Payment	Write Off	% of Total Bill Written Off
Blue Cross	\$2,487.55	\$2,329.59	93.65	\$2,359.50	\$ 128.05	5.15
Other Third Party	965.95	481.00	49.80	596.00	369.95	38.30
No Insurance	2,049.05	None	None	660.00	1,389.05	67.79
Total	\$5,502.55	\$2,810.50		\$3,615.50	\$1,887.05	34.29

Accounts Written Off as Uncollectable

The billed charges for the 10 months period were slightly over 3 million dollars. The total uncollectable accounts amounted to 1.95% of the total. Breaking this down between patients over 65 and under 65 we find that uncollectable accounts represented only .36% of billed charges in the age group over 65 as compared to 2.27% under 65. See Schedule 1.

Analysis of Accounts of Patients Over 65 by Sex

Male patients over 65 represented 51.46% of total patients over 65 while female patients represented 48.54%. See Schedule 3.

Charges to male patients represented 55.81% of total charges and female patients represented 44.19% of total charges to patients over 65. See Schedule 4.

Analysis of Patients Over 65 by Age Groups

Of the total number of patients over 65, 99.18% of the total were paid in full. Of this group 44.29% were between the ages of 65 and 70, 28.45% were between the ages of 70 and 75, 15.23% from 75 to 80 and the balance over 80.

The oldest patients treated were — 3 aged 96, treated in the Emergency Room and the next oldest was — 95, an in hospital patient. Details of age group are set forth in Schedule 5.

Types of Payments of Accounts
of Patients over 65

Of the total number of accounts of in hospital patients over 65, whose accounts were paid, 44.99% were Blue Cross subscribers, 18.34% had coverage by third party, and 36.67% were paid for by the patient or members of the family.

Of the patients who had Blue Cross, 86.38% of the total bill was covered by Blue Cross while those with commercial insurance or who were

covered by some Social Agency only 67.06% of the bill was covered. For details see Schedule 6.

Analysis of Accounts Written Off
of Patients Over 65

Accounts of in patients over 65 (not paid in full) amounted to \$5,502.55 of which amount \$1,887.05 or 34.29% was written off. Out Patient Accounts in the amount of \$37.20 was written off bringing the total write off to \$1,924.25 as shown in Schedule 1.

Of the in patients accounts written off, the write off of accounts having Blue Cross amounted to 5.15% of the amount billed, for accounts with commercial insurance the write off was 38.30% of billed charges, and for accounts with no insurance the write off was 67.79% of billed charges. See Schedule 7.

COMMENTS

The most interesting fact revealed by this study is that the uncollectable amount of hospital bills of patients over 65 was only .36% while for those under 65 the uncollectable accounts amounted to 2.27% of total billed charges in their respective categories.

These figures pertain only to Tucson Medical Center and may not be representative of other parts of the country.

It may be that the relative low loss on accounts of patients over 65 is due to the fact that many of the people in this age group have, upon retirement, moved to Tucson and have ample funds to meet their hospital bills.

On the other hand, there may be a great number of persons over 65 who have come to Tucson for health reasons who are not financially well off. Their number cannot be estimated

from any experience of Tucson Medical Center to date.

Under the Arizona law persons are not eligible for care in the County Hospital until they have been a resident for one year.

There is one other factor that should be considered in this study, and that is — will the people in the community who reach the age of 65 in the coming years be as financially able to provide for hospital care from their own resources as the present group over 65?

It is the writer's opinion that due to the present popular trend in the public thinking, that people will tend less and less to feel the necessity of providing for their old age and expect the government to care for them.

Respectfully submitted,
M. G. Wolfers, Administrator
Tucson Medical Center

PUBLIC LAW 86-724

Physicians of Arizona are herewith advised of an important notice which is now being distributed to certain retired Federal employees and their survivors.

This notice concerns the Retired Federal Employees Health Benefits Act of 1960 (Public Law 86-724), which is to be differentiated from the Health Benefits Act of 1959 (Public Law 86-382). The 1959 Act authorizes a health benefits program for "active" employees and their families and provides that coverage may be continued after retirement or death for those employees or survivors who meet certain requirements. This Act made no provision for coverage of those employees whose Federal employment terminated in retirement or death before the July 1960 effective date. The 1960 Act authorizes a health benefits program for just such "retired" employees and their survivors.

The Retired Federal Employees Health Benefits Act of 1960 is less liberal than the plan provided for active employees. It will become effective July 1, 1961.

The Act provides for one uniform Government-sponsored plan which any eligible person may join. "OR," a person may continue in any private health benefit plan he has at the time of his enrollment under the program. A list of private plans meeting the requirements of the law is being included in the information kits now being distributed. To be approved, the private plan 1) must have been providing health benefits for a year and 2) if an insurance company, it must be licensed to issue individual or group health insurance in all the States and the District of Columbia. The Commission which compiled the list made no attempt to evaluate the benefits structures and premium rates of private plans.

In contrast to plans provided by insurance companies, there are certain so-called "community plans" which include Blue Cross-Blue Shield and plans which have their own doctors and clinics. These plans are exempt from the requirement placed on insurance companies that they must be licensed in all the States and the District of Columbia. The only requirement placed on the community plans is that they must have been providing health benefits for one year.

The monthly contribution made by the Government will be three dollars for a self-only enrollment and six dollars for a self-and-family enrollment, except that the Government will not contribute more than the cost of the plan. Enrollment for self-and-family means enrollment of the eligible person, spouse, and unmarried children under the age of 19. In no case will the Government contribution exceed six dollars.

Details of the Act of 1960 remain to be worked out.

Wallace A. Reed, M.D.

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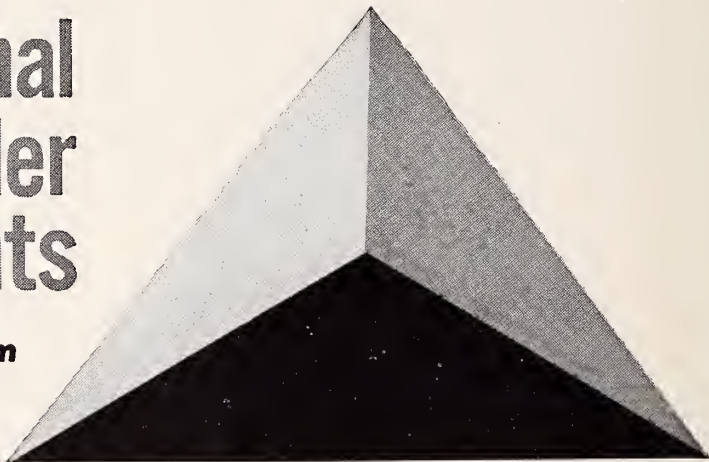
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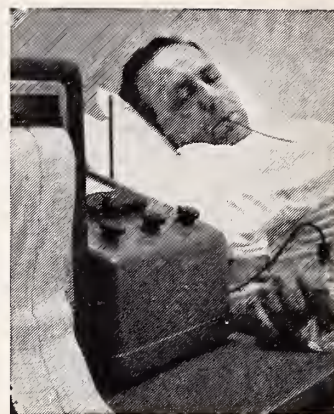
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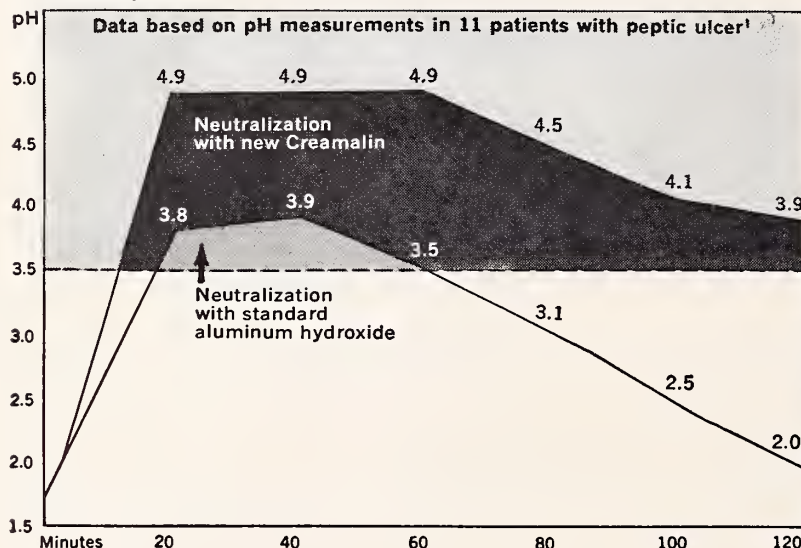
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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: J. Am. Pharm. A. (Scient. Ed.) 48:384, July, 1959.

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Herbert L. Abrahams, M.D., Associate Professor of Radiology, Stanford University School of Medicine, Palo Alto, California.

Graduate of Long Island College of Medicine, M. D. Degree, 1946 Associate Professor in Radiology, Stanford University 1957 — Special Research Fellow, National Heart Institute, University of Lund School of Medicine, Lund, Sweden 1960.

Author of numerous Scientific Articles — Co-author of Scientific books and texts.

Member of 11 Scientific Societies and Organizations, including the American Board of Radiology, and the American College of Radiology.

Evan Calkins, M.D., Assistant Professor of Medicine, Harvard Medical School, and Chief of the Arthritis Unit, Boston, Mass. M.D. Degree, Harvard Medical School, cum laude, 1945.

Member, Training Grants Committee, National Institutes of Arthritis and Metabolic Diseases.

Member, Endocrine Society, American Rheumatism Association, New England Rheumatism Society.

Chairman, Committee on Diagnostic and Therapeutic Criteria of the American Rheumatism Association.

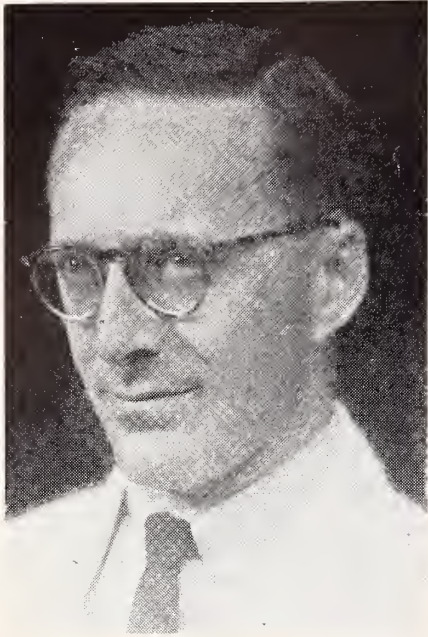
Chairman, Membership Committee of the American Rheumatism Association.

Mahlon H. Delp, M.D., Chairman, Department of Medicine, University of Kansas School of Medicine, Kansas City, Kansas.

M.D. Degree — University of Kansas, 1934. P. T. Bohan Professor of Medicine. Member of the American Clinical and Climatology Association. Co-author with Dr. Ralph H. Major, "Physical Diagnosis." Diplomate, American Board of Internal Medicine. During World War II he had 48 months of active service and held the rank of Colonel. At present, he is a student of the history of Medicine in Arizona.

H. Corwin Hinshaw, Sr., M.D., Clinical Professor of Medicine, University of California Medical Center, San Francisco, California.

Ph.D. Degree, University of California, 1927. M.D. Degree, University of Pennsylvania, 1933. He holds membership in numerous Medical and Scientific Organizations, including; The American Clinical and Climatology Association — Fel-



Herbert L. Abrams, M.D.



Evan Calkins, M.D.

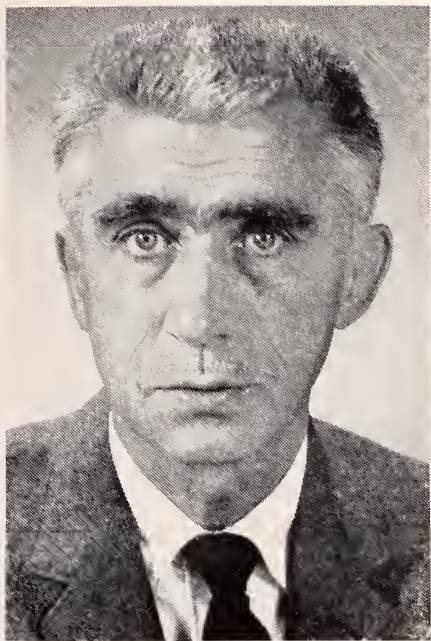
1961 ANNUAL MEETING



Robert T. Manning, M.D.



John H. Mulholland, M.D.



Mahlon Delp, M.D.

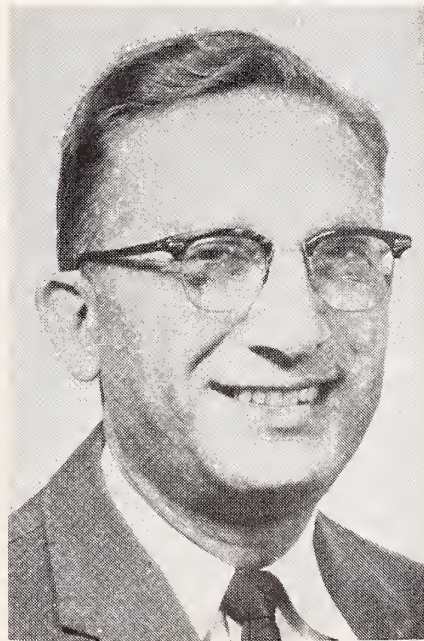


H. Corwin Hinshaw, M.D.

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John W. Rebuck, M.D.



Alfred M. Steinman, M.D.

low, American College of Chest Physicians. He has held teaching positions in several Universities, and Medical Schools, and was the Head of a Section in Medicine, Mayo Clinic, Rochester, Minnesota. Consultant to Surgeon General, U. S. Public Health Service, 1951. Consultant to the Surgeon General, U. S. Army (Letterman Army Hospital). At the present time, he is Consultant in Medicine, Letterman General Hospital, Oak Knoll Naval Hospital, and the Southern Pacific Hospital. Dr. Hinshaw, has been a recipient of a number of honors and is listed in WHO'S WHO IN AMERICA and AMERICAN MEN OF SCIENCE. He is author and co-author of many articles and books.

Robert T. Manning, M.D., Associate in Medicine, University of Kansas Medical Center.

M.D. Degree, University of Kansas Medical School, 1954 — Residency: Internal Medicine, Kansas University Medical Center, 1956-58. Trainee: National Institutes of Arthritis and Metabolism, 1956-58.

John H. Mulholland, M.D., Professor of Surgery, New York University Postgraduate Medical School, New York, New York. M.D. Degree — New York University School of Medicine, 1925.

Director of Surgery, Bellevue Hospital, 4th Division. He holds the title of Surgical Consultant in a number of New York Hospitals. Diplomate, American Board of Surgery. Member of numerous Medical organizations and honorary societies. He served in the Armed Forces as a Lieut. Colonel, in the Army Medical Corp., and was awarded the following distinguished citations: Meritorious badge — Unit Citation; Bronze Star and Croix de Guerre (France).

Dr. Mulholland has held and now holds numerous important committee appointments including Member of the Examining Board, American College of Surgeons — Consultant in Surgery, Surgeon General's Office — President, American Surgical Association 1957-58 — Editor, Annals of Surgery.

John W. Rebuck, M.D., Ph.D., Physician in Charge, Division of Laboratory Hematology, Henry Ford Hospital, Detroit, Michigan.

M.D. Degree, University of Minnesota Medical School, 1943. Ph.D., Degree University of Minnesota, 1947 — Instructor in Hematology, Graduate School, Wayne University, 1947 — to date — Diplomate in the American Board of

Pathology in Surgical Pathology. Dr. Rebuck has been author and co-author of 84 published medical reports, including 3 books. He has received numerous honors, and is a member of many professional societies.

Alfred M. Steinman, M.D., Research Department, G. D. Searle & Co. Graduate of Long Island College of Medicine, 1949. Member American Board of Internal Medicine. Fellow American College of Cardiology.

SYMPOSIUM ON MEDICAL AND SURGICAL PROBLEMS IN OLD FOLKS

The Arizona Academy of General Practice and The Maricopa County Medical Society announce a "Symposium on Medical and Surgical Problems in Old Folks" to be held Saturday, March 18, 1961 at The Hotel Westward Ho, Phoenix, Arizona.

PROGRAM

- 10:00 a.m. What Is Growing Old?
Edward H. Rynearson, M. D.
 Mayo Clinic
 Rochester, Minnesota
- 10:40 A.M. Pediatric Sign Posts to Premature Aging
Frederic G. Burke, M.D.
 Georgetown University School of Medicine
 Washington, D. C.
- 11:20 A.M. Emotional Struggles in Adjusting to Old Age
Beverly T. Mead, M.D.
 University of Utah College of Medicine
 Salt Lake City, Utah
- 2:30 P.M. Maintenance of the Cardiovascular System in the Aged
Arthur Grollman, M.D.
 University of Texas
 Southwestern Medical School
 Dallas, Texas
- 3:10 P.M. Surgery After 65?
Philip Thorek, M.D.
 Cook County Graduate School of Medicine
 University of Illinois College of Medicine
 Chicago, Illinois
- 4:05 P.M. Management of Those Aching Joints
L. Maxwell Lockie, M.D.
 University of Buffalo School of Medicine
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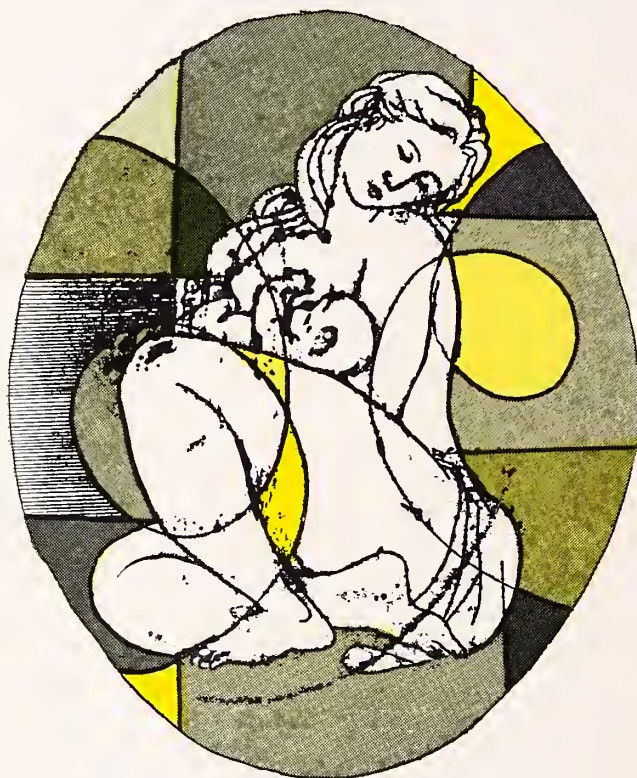
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1. Macy, I. G.; Kelly, H. J., and Sloan, R. E.; with the Consultation of the Committee on Maternal and Child Feeding of the Food and Nutrition Board, National Research Council: The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953. 2. Brown, G. W.; Tuholski, J. M.; Sauer, L. W.; Minsk, L. D., and Roscnstern, I.: Evaluation of Prepared Milks in Infant Nutrition; Use of the Latin Square Technique, J. Pediat. 56:391 (Mar.) 1960.



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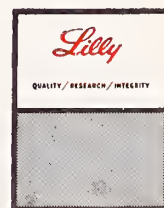
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


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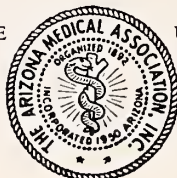


Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

April, 1961



Vol. 18, No. 4

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1. Bagnoll, A. W.: Antimalarial compounds in rheumatoid disease, *Canad. M.A.J.* 82:1167, June 4, 1960.

2. Cornbleet, Theodore: Discoid lupus erythematosus treated with Plaquenil, *A.M.A. Arch. Dermat.* 73:572, June, 1956.

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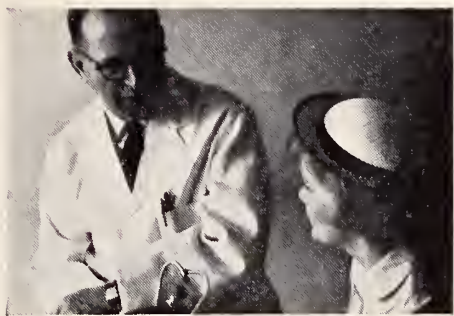
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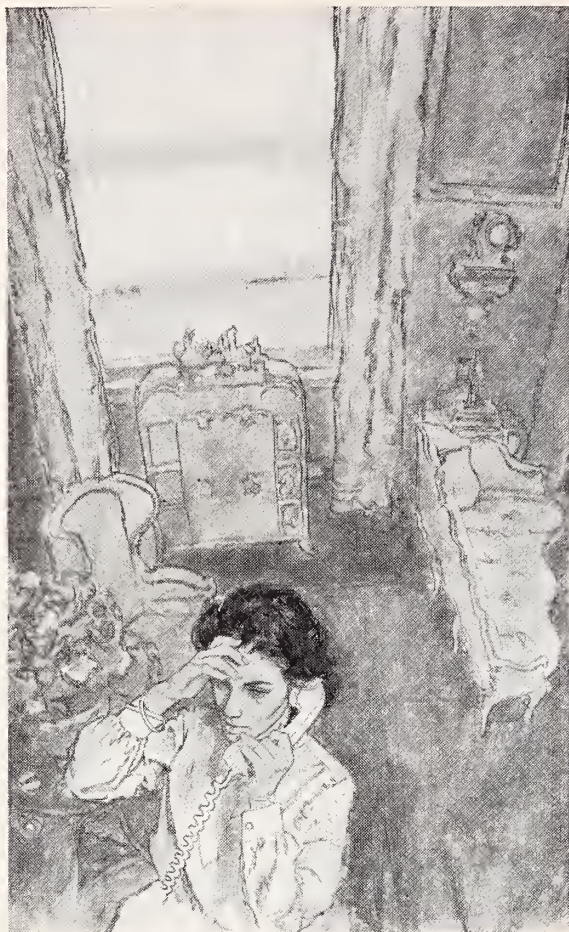


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REFERENCES: 1. Carpenter, E. B.: Southern M.J. 51:627, 1958. 2. Forsyth, H. F., J.A.M.A. 167:163, 1958. 3. Hudgins, A. P.: Clin. Med. 6:2321, 1959. 4. Grisolia, A., and Thomson, J. E. M.: Clin. Orthopaedics 13:299, 1959. 5. Lewis, W. B.: California Med. 90:26, 1959. 6. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 7. Park, H. W.: J.A.M.A. 167:168, 1958. 8. Plumb, C. S.: Journal-Lancet 78:531, 1958. 9. Poppen, J. L., and Flanagan, M. E.: J.A.M.A. 171:298, 1959. 10. Schaubel, H. J.: Orthopaedics 1:274, 1959.

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Arizona Medical Association Reports

Arizona Medicine

April, 1961



Vol. 18, No. 4

Arma Disability Insurance — Group Plan

This Article is written to reacquaint you with your Association's outstanding Disability Program.

Since July 15, 1953 the National Casualty Company has underwritten our Plan. This Company is one of the largest underwriters of Association Group Insurance in the United States specializing in this type of coverage for over twenty years. The Arizona Medical Association Group Plan is one of the most comprehensive written anywhere and consists of three policies. The first is a Basic Group Disability Plan that pays a total disability benefit of \$300.00 per month from the first day of accident for a period of five years. Sickness is payable from the eighth day of disability for as long as two years. This contract also provides an additional payment of \$7.00 per day while the insured is hospitalized, for a maximum of 70 days and \$25.00 for miscellaneous expenses. Accidental Death Benefit is \$2,500.00. Dismemberment ranges from \$2,500.00 to \$10,000.00, depending on loss. On December 1, 1955 this Plan was further enhanced by the addition of the Extended Coverage Disability Plan which increased the length of time for which benefits of the Basic Plan are payable to seven year sickness and lifetime accident.

Many doctors over the past few years have requested additional monthly indemnity. As a result the Company has made available to its mem-


bers the supplementary Association Disability Policy which can be purchased by insurable members in amounts of multiples of \$100.00 not to exceed \$300.00. This, together with the Basic Policy, provides monthly indemnity in amounts up to 600 tax free dollars a month.

The Basic Policy is available to all new members who apply within 60 days without evidence of insurability and is renewable as long as the insured remains a member of the Association and continues in the practice of medicine.

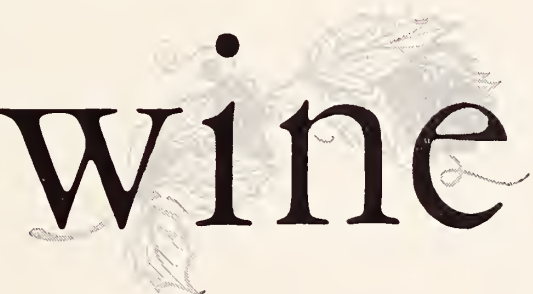
The Extended Disability Policy is also available to all new members of the Association if applied for within 60 days of membership. Based upon past medical history the Company may issue the policy for either \$300.00 or \$200.00 per month and is renewable through age 65. The supplemental Association Disability Policy is available to all insurable members of the Association and is renewable through age 69.

Once issued these policies cannot be individually terminated or restricted because of health conditions originating after issuance of the contracts.

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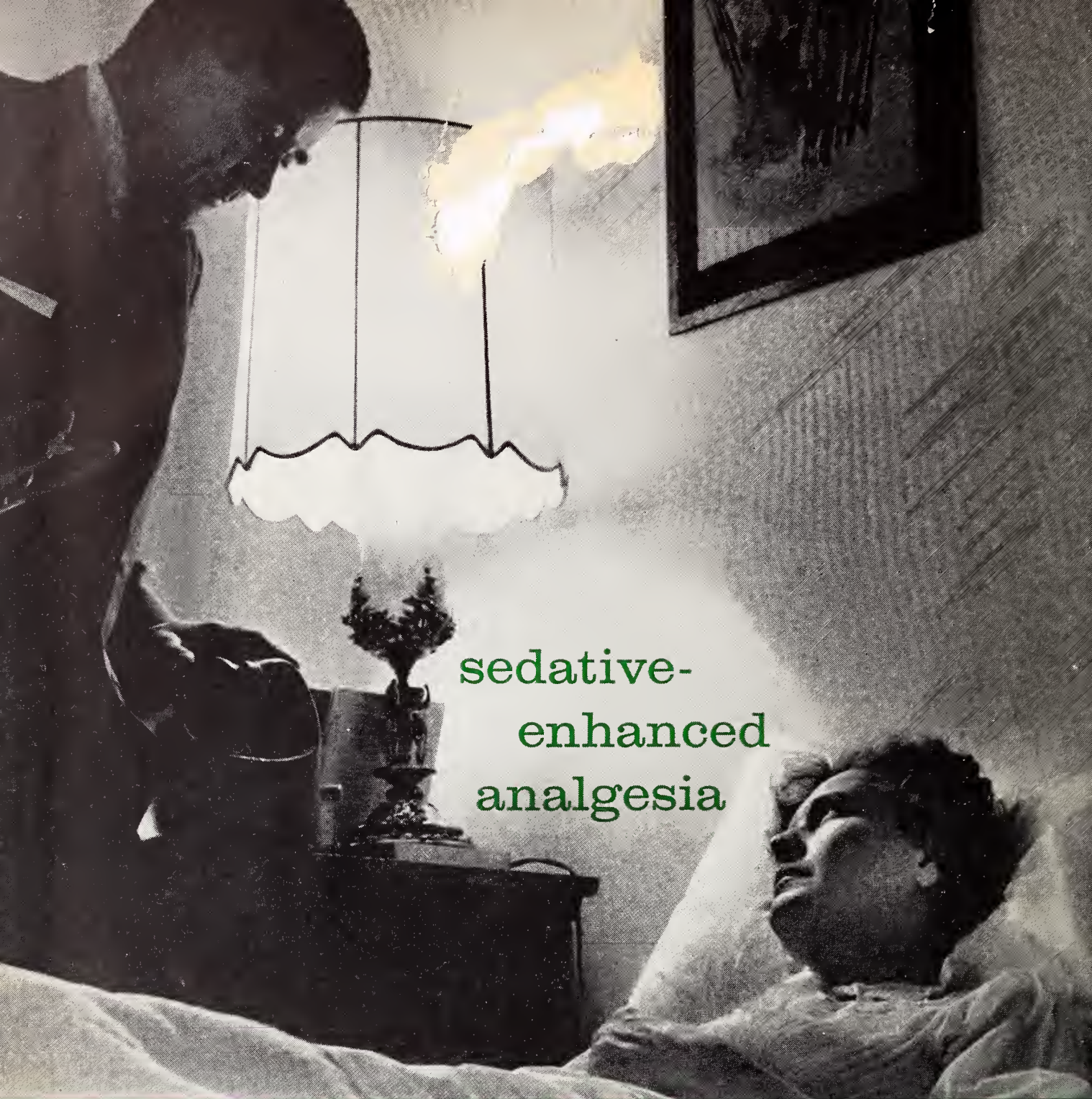
"In...recent years,...comprehensive programs of wine research have been instituted in many university laboratories and clinics....Among the most recent findings are new evidence of *dry* wines' value in the treatment of diabetes...; the detection of wine components which act as mild cardiac stimulants; marked effects in reducing basic emotional tension...in protecting against the shocks of sudden stimuli (both of these at very moderate blood-alcohol levels), and somewhat startling values in treating diseases of the digestive tract.

"Especially good news to doctors are findings that certain wines are the most effective natural liquid stimulants of appetite for their convalescent patients; that the low sodium content of the beverage permits its inclusion in the unpleasant low-salt diets of patients with heart trouble; and, finally, measured proof of wine's value in promoting euphoria."*



For a scientific discussion of the modern *R* uses for wine in convalescence, cardiology, urology, geriatrics, write for "Uses of Wine in Medical Practice," Wine Advisory Board, 717 Market Street, San Francisco 3, California.

*Adams, L. D.: The Commonsense Book of Wine, New York, David McKay Company, Inc., 1958, pp. 162-163.



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1. Meyers, G. B.: Ind. Med. & Surg. 26:3, 1957. 2. Murray, R. J.: N. Y. St. J. Med. 53:1867, 1953.

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STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Syncillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHICILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHICILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHICILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHICILLIN is stable in the presence of staphylococcal penicillinase. STAPHICILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHICILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHICILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHICILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg. ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHICILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHICILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHICILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHICILLIN therapy.

Toxicity studies with STAPHICILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHICILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHICILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHICILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHICILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Syncillin) and STAPHICILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHICILLIN therapy, appropriate measures should be taken.

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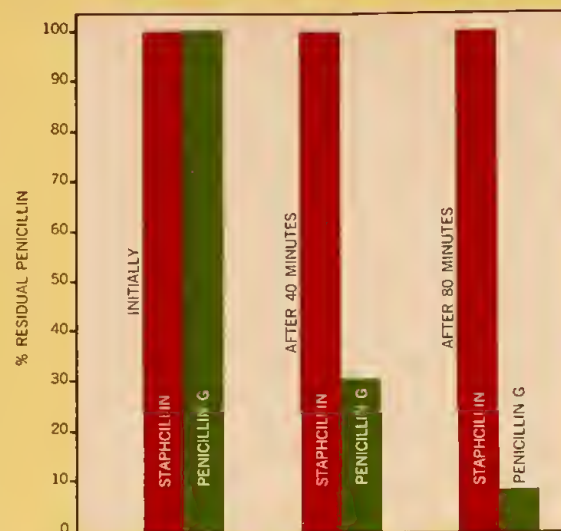
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The failure of staphylococcal infections to respond to penicillin therapy is attributed to the penicillin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

Unlike other penicillins:

- 1 STAPHICILLIN is effective because it retains its antibacterial activity despite the presence of staphylococcal penicillinase.
- 2 The clinical effectiveness of STAPHICILLIN has been confirmed by dramatic results in a wide variety of infections due to "resistant" staphylococci, many of which were serious and life-threatening.

Like other penicillins:

STAPHICILLIN has no significant systemic toxicity. It is well tolerated locally, and pain or irritation at the injection site is comparable to that following the injection of penicillin G. *In occasional cases, typical penicillin reactions may be experienced.*

PROFESSIONAL INFORMATION SERVICE — The attached Official Package Circular provides complete information on the indications, dosage, and precautions for the use of STAPHICILLIN. If you desire additional information concerning clinical experiences with STAPHICILLIN, the Medical Department of Bristol Laboratories is at your service. You may direct your inquiries via collect telephone call to New York, PLaza 7-7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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Pro-Banthine, brand of propantheline bromide, is supplied in tablets of 15 mg. for oral administration in conditions such as peptic ulcer, gastritis, duodenitis, pylorospasm, biliary dyskinesia and spastic colon, and in ampuls of 30 mg. for intramuscular or intravenous administration in conditions such as ureteral spasm and pancreatitis in which prompt and vigorous effects are required or when nausea and vomiting preclude oral administration.

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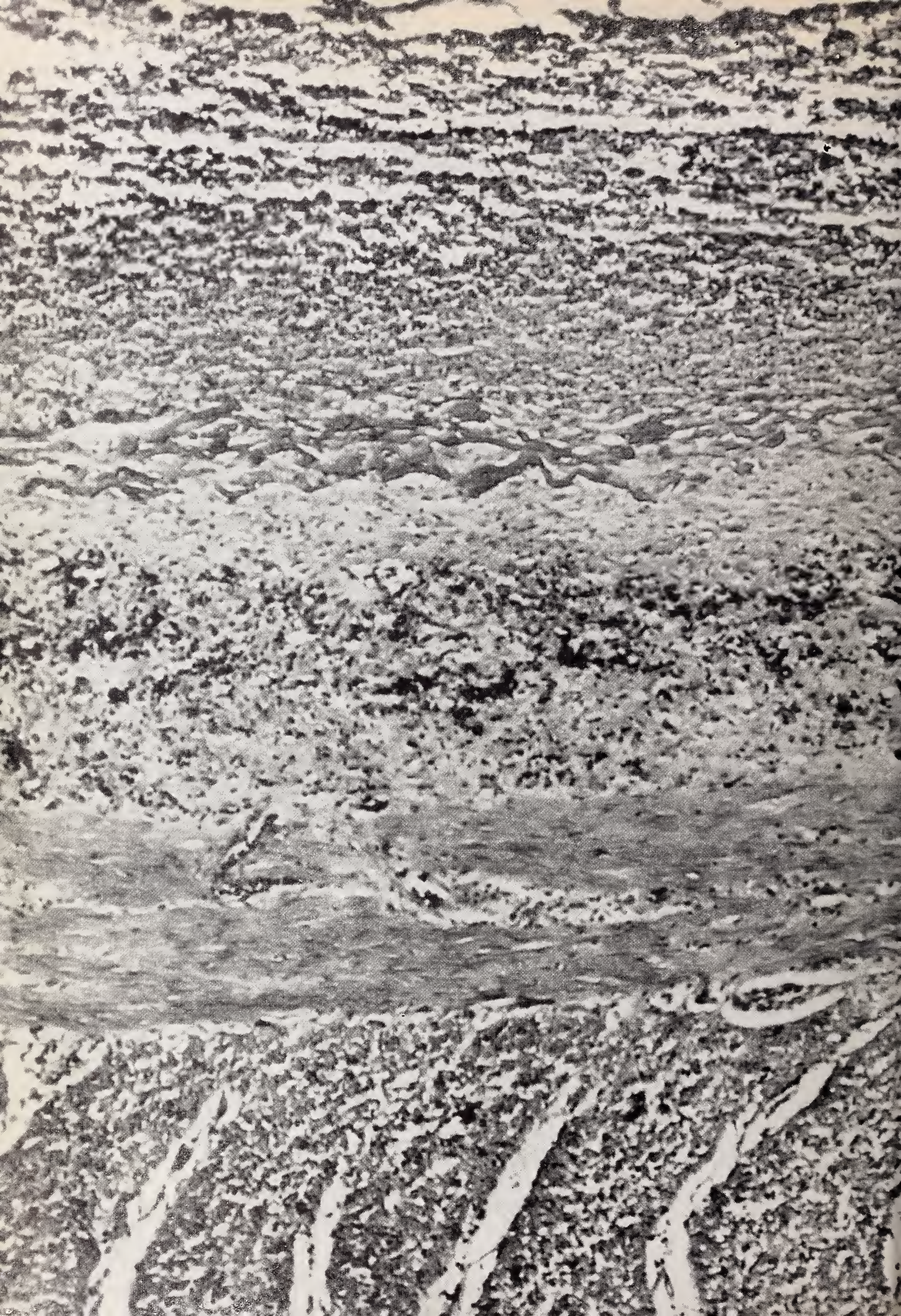
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1. Krantz, J. C., Jr., and Carr, C. J.: The Pharmacologic Principles of Medical Practice, Baltimore, The Williams & Wilkins Company, 1958, p. 843.

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Panalba is effective against more than 30 commonly encountered pathogens including ubiquitous staphylococci. Right from the start, prescribing it gives you a high degree of assurance of obtaining the desired anti-infective action in this as in a wide variety of bacterial diseases.

in peritonitis

Supplied: Capsules, each containing Panmycin* Phosphate (tetracycline phosphate complex), equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin,* as novobiocin sodium, in bottles of 16 and 100.

Adult dosage: 2 capsules four times a day.

Side effects: Panmycin Phosphate has a very low order of toxicity comparable to that of the other tetracyclines and is well tolerated clinically. Side reactions to therapeutic use in patients are infrequent and consist principally of mild nausea and abdominal cramps.

Albamycin also has a relatively low order of toxicity. In a certain few patients, a yellow pigment has been found in the plasma. This pigment, apparently a metabolic by-product of the drug, is not necessarily associated with abnormal liver function tests.

Urticaria and maculopapular dermatitis, a few cases of leukopenia, and agranulocytosis have been reported in patients treated with Albamycin. All of these side effects rapidly disappeared upon discontinuance of the drug.

Caution: Since the use of any antibiotic may result in overgrowth of nonsusceptible organisms, constant observation of the patient is essential. If new infections appear during therapy, appropriate measures should be taken.

As with any serious infection, therapy of peritonitis with Panalba or other antibacterial agents is adjunctive to surgical procedures and supportive therapy.

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Vitamin B ₁₂	5 mcg.



“nutrition...present as a modifying or complicating factor in nearly every illness or disease state”¹

1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases “Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease.”²

2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958.

arthritis “It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . .”³

3. Fernandez-Herlihy, L.: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.⁴ Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.⁵

4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases “Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult.”⁶

6. Overholser, W., and Fong, T. C. C. In Stieglitz, E. J.: Geriatric Medicine, 3rd edition, J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.⁷

7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.⁸ “Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes.”⁹

8. Duncan G. G.: Diseases of Metabolism 4th edition W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

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PRECAUTIONS: As with many other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs discontinue medication. Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under observation.

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For the past six years, he has been maintained on METICORTEN 5 mg. two or three times a day. There have been no side effects. The patient has not lost any work time, nor has he had to limit

his activities in any way.

Case history courtesy of Joel Goldman, M.D., Johnstown, Pa. These photographs of Dr. Goldman's patient were taken on November 10, 1960.

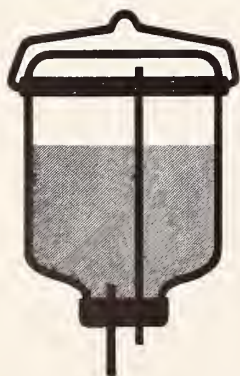
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The Polyoma Story

A. W. Ham, M.D.

A. A. Axelrad, M.D.

A. F. Howatson, M.D.

E. A. McCulloch, M.D.

A most interesting analysis of an unique virus that produces different kinds of tumors in different species of animals — the polyoma virus. Tumors being induced if injected into newborn animals, but not if injected into older animals. This is a clear, concise report.

In the last decade there has been an intensification and broadening of interest in the possible relation of viruses to cancer. There are two factors responsible for this changing attitude. The first is the impressive experimental studies of the past decade which have shown that many kinds of tumors can be induced in mice, rats and hamsters if members of these species are injected with certain viruses *at birth*. The second is the newer knowledge of viruses, cells and virus-cell interrelationships, which now make it possible to visualize how viruses could cause tumors by changing the genetic nature of cells, that is by causing mutations in body cells. In telling the story of the polyoma virus, we shall see how these two factors complement each other.

The polyoma story began with the development, by Jacob Furth, of an inbred strain of mice, called the AK strain which is distinguished by the fact that the members of this strain almost all develop leukemia spontaneously. It may be of interest to describe how an inbred strain of this type is usually developed. Neoplasia develops spontaneously in mice just as it does in man. To develop a special strain, different families of mice are kept in isolation, and whenever any parent mouse develops neoplasia, children of that parent are inbred. By repeating the process at each generation, a pure strain of inbred mice can be developed with the incidence of some type of neoplasia in the strain increasing steadily.

The next step in the story was of tremendous importance. Dr. Ludwig Gross of the Veterans' Hospital, Bronx, New York, had enough courage and imagination to question if the leukemia that developed spontaneously in these AK mice was due to a virus. To test this hypothesis, he

The research work by the Toronto group described in this review was supported in part by a grant from the National Cancer Institute of Canada and in part by a grant from the National Institutes of Health, U.S.A. (Grant C-4964).

Presented at the Ninth Annual Cancer Seminar of the Arizona Division of the American Cancer Society, Tucson, January 12, 1961.

Department of Medical Biophysics, University of Toronto; and Division of Biological Research, Ontario Cancer Institute, Toronto, Canada.

made cell-free extracts of the leukemic tissues of these mice and injected the extracts into mice of a kind that seldom develop leukemia. He did not achieve success until he began injecting his extracts into newborn mice, but when he did this, he found that a significant number of these, as they grew older, developed leukemia.(1,2)

The next contribution of importance was the observation made both by Gross(3) and by Sarah Stewart.(4) They both found that mice injected at birth with cell-free extracts of the leukemic tissues of AK mice sometimes developed parotid tumors. The next and very important finding came a few years later. Stewart, Eddy, *et al.*(5,6,7,8) showed that if tissue cultures of mouse embryo cells were inoculated with extracts of the leukemic tissues of AK mice, a virus would grow in the cells of the culture and destroy them. Then, if the lysates of the cultures were injected into newborn mice of the Swiss strain, the mice, as they grew older, would develop, not leukemia, but a great variety of solid tumors, including carcinomas of the parotid gland.

Sarah Stewart and her associates next injected lysates from their tissue cultures into newborn rats and hamsters and found that both the rats and the hamsters developed sarcomas.(9,10) These developed in the kidney, the heart and in other sites. Since the virus that they had been able to cultivate in tissue culture caused so many different kinds of tumors, they called it the *polyoma virus*.

It did seem peculiar, however, that although the virus that was cultivated in tissue culture had been obtained from the leukemic tissues of AK mice, that it did not, after passage in tissue culture, induce leukemia in the mice into which it was injected, but instead, a dozen and a half other kinds of tumors. In this connection it will be recalled that both Gross and Stewart had observed that occasionally, newborn mice injected with extracts of the leukemic tissues of AK mice, developed parotid tumors. This raised the question as to whether or not there were two viruses in the leukemic tissues of AK mice, one that caused the leukemia, but which did not grow in tissue culture, and another which under usual conditions, caused no tumors, but which,

if it were injected into newborn mice, would produce tumors of the parotid gland, and which, if it were cultivated in tissue culture, would produce a whole spectrum of tumors, including parotid tumors. Gross(1) soon came to the conclusion that there were two viruses in the leukemic tissues of AK mice, one that causes leukemia, and another which could, under the right circumstances, cause parotid tumors. He called the latter one a parotid-tumor-inducing virus. It soon became apparent that it was this virus and not the leukemia virus that could be propagated in tissue cultures, and hence that the polyoma virus of Stewart and Eddy was the parotid-tumor virus. It is still not known whether the parotid tumor virus and the polyoma virus are absolutely identical. It seems probable that they are, and that the greater tumor-inducing properties of the virus from tissue culture is due to its greater concentration, and also to the fact that in tissue culture it is removed from inhibitors which may be present in the animal from which it is recovered.

This, then, was a very curious situation. The virus that could be cultivated in tissue culture, and which would then induce a whole spectrum of neoplasms when it was injected into newborn animals, was merely a passenger virus in the leukemic tissues from which it was obtained. It was causing no tumors in the animals from which it was obtained and its tumor-inducing abilities would probably never have been learned if extracts containing it had not been introduced into tissue cultures and injected into newborn animals. It can be present in, or injected into, older animals without causing tumors.

It was just about this time that we began our studies in this field. We had a somewhat similar experience, for we recovered polyoma virus from a tumor that was caused not by it, but by another tumor virus.(12,13)

As is well known, spontaneous mammary tumors that develop in C3H mice are associated with a virus commonly termed the mammary tumor agent. Dr. McCulloch of our group made an extract of a tumor of this type and, indeed, the mammary tumor agent was demonstrated in this tumor with the electron microscope. A culture of mouse embryo cells was inoculated

with an extract of the tumor. A cytopathogenic effect (CPE) was observed in the culture on the 13th day. Inoculations of further cultures, with extracts from the first, resulted in cytopathogenic effects appearing on the 5th or 6th day, and thereafter, on further transfers, a CPE occurred regularly on the 5th to 6th day. Since several newborn Swiss mice inoculated with fluid from the cultures developed parotid tumors, newborn hamsters were injected with the extracts to help determine whether or not we had recovered polyoma virus from the mouse mammary tumor. The inoculated hamsters developed both kidney and heart sarcomas, which tumors Stewart, Eddy and their associates had shown did develop in hamsters inoculated with polyoma virus. Newborn rats, injected with our virus also developed sarcomas similarly to rats injected with polyoma virus by Stewart, Eddy, *et al.* We therefore, concluded that we had recovered a polyoma virus from the C3H mouse mammary tumor, even though the latter tumor had been caused by the milk agent.

Our findings in mice and hamsters, however, suggested that the polyoma virus that we had recovered did not have precisely the same effects as those reported for the virus that Stewart, Eddy, *et al.*, had recovered. Our virus did not seem to produce tumors so readily in Swiss mice as theirs, but it induced kidney sarcomas in hamsters much more quickly; indeed, about half of our hamsters injected on their first day of life would be dead in 12 days with huge, diffuse, bilateral kidney sarcomas that replaced most of the substance of their kidneys. (12,13) The great rapidity with which these tumors developed provided an unique opportunity for making a day-to-day study under the microscope of the sequence of changes that occur in the kidney in viral carcinogenesis, so such a study was undertaken. (14) This will now be reviewed.

OBSERVATIONS

In hamsters, injected on the first day of postnatal life, the first sign of a kidney lesion was seen with the light microscope on either the third or the fourth day. The cells in which the lesion appeared were the mesenchymal cells that were engaged in forming the stroma of the medulla. These cells are seen to best advantage

in little triangular patches on the medullary side of each pair of arcuate vessels that happen to be cut in making the section. In these patches, the mesenchymal cells extended directly to the endothelium of the developing vein (which suggested that these cells would subsequently form such muscle and connective tissue as would constitute the media and adventitia of these veins), and out between the tubules of the medulla where they were forming the medullary stroma.

In some kidneys on the third day, and in most kidneys on the fourth day, the patches of mesenchyme described above were observed to be larger than those in the controls. On examination under the higher powers, many of the cells in these patches were seen to be undergoing necrosis. The most prominent change indicative of this was a margination of the chromatin of their nuclei and the presence of clumps of basophilic necrotic material in the cytoplasm. No inflammatory cell infiltration was observed at this time. Many cells of the same type as those manifesting degeneration and necrosis appeared healthy and some were seen in mitosis.

By the sixth day, the patches had enlarged still further and a low power inspection of a section of kidney showed them as light pyramidal areas disposed with their bases at the cortico-medullary junction. At higher magnifications many of the mesenchymal cells showed the same degenerative and necrotizing changes that were seen on the fourth day. In addition, many nuclei with marginated chromatin contained inclusion bodies; these were round to ovoid and occupied the central parts of nuclei which were otherwise empty except for the marginated chromatin on the inner surface of their nuclear membranes. However, despite the presence of many degenerating and necrotic cells, other cells of the same type appeared healthy and many mitotic figures were seen. No inflammatory cell infiltration was noted until a day or two later, even though many cells in the area were necrotic at this time.

After the sixth day, the proliferative response became the dominant one and fewer and fewer cells manifesting degeneration and necrosis were evident. Because of the continuing proliferation, the pyramidal-shape areas of mesenchyme (the

transformed patches) began to fuse with one another, and by around the 10th day, almost the whole medulla was occupied by a confluent mass of rapidly proliferating spindle cells. Nodules of cells of the same type were found at this time in the lungs of some of the animals; these were interpreted as metastases. Tissue from the frank tumors that were present by this time was transplanted to other hamsters and, although we were not working with inbred hamsters, the transplants in many instances grew and killed their hosts.

We concluded from our light microscope study of the sequence of changes, that the virus had induced two types of response, a necrotizing and a proliferative one, in the developing stromal cells of the hamster kidney. We concluded, furthermore, that the necrotizing response was a transient one which reached its peak around the sixth day and thereafter faded. The proliferative response, which began at the same time, continued, and this constituted the tumor. Hence the tumor had its origin, not in a single cell, or even in a few cells, but in thousands of cells scattered throughout the kidney, and from all these many points of origin the proliferating cells merged to form the huge masses of tumor cells visible to the naked eye by the tenth day.

ELECTRON MICROSCOPE STUDY

Our next procedure was to study, with the electron microscope, the sequence of events that occurred in the kidneys of hamsters inoculated at birth with the virus so as to determine whether or not virus production was associated primarily with the necrotizing response.(15) This was done and it was found that increasing numbers of virus particles could be seen in stromal cells from the third to the sixth or seventh day. After this, their numbers fell off very rapidly and none were seen in frank tumors. The electron microscope study, therefore, showed that the production of virus was associated with the necrotizing response which terminated at around the seventh day. The virus particles that were seen were typical of the polyoma virus. They appeared first in nuclei, and their multiplication was so great that nuclei were often seen to be composed almost entirely

of virus particles; often these were arranged in crystalline-like arrays. Many large clusters of virus particles were also seen in the cytoplasm of cells; it was assumed that most of these originated from infected nuclei that had broken down and been phagocytosed by adjacent cells.

In order to verify the hypothesis suggested by the light and electron microscope studies, namely, that the production of virus was associated only with the necrotizing response, we decided to make a study whereby kidneys from hamsters inoculated with virus at birth, would be obtained at daily intervals and extracted, with the extracts being assayed for virus content by injecting them into other newborn hamsters.(16) When this experiment was done, it showed that the amount of tumor-inducing virus that could be recovered from the kidneys of hamsters injected on their first day of postnatal life was negligible until the third day. Over the next few days, the yield of virus increased rapidly, reaching a peak around the sixth day. The yield fell off slightly on the seventh day, and then fell to zero during the next two days. This experiment illustrated three points clearly. First, it showed that the production of virus in the hamster kidney was associated with the necrotizing response that had been shown to occur both with the light and electron microscope studies and which was of a transient nature. Secondly, it showed that production of virus was not associated with the proliferative response, for when this response alone was visible in the kidney, after the eighth day, the kidneys contained no virus that could be assayed by the method used. Thirdly, the experiment showed that the virus produced in the necrotizing response was the virus that induced tumors, for the way the amount of virus present in kidneys on the different days of the experiment was assayed, was by its ability to induce tumors when it was injected into other newborn hosts.

DISCUSSION

These three kinds of experiments by our group seem, therefore, to show clearly that the mesenchymal cells of the developing stroma of the kidney of the newborn hamster can react to the polyoma virus in two different ways. In one type of interaction, the virus multiplies within

the cell and destroys it, liberating virus. To this disease, the animal reacts by producing antibody to the virus. Recovery occurs from this disease much as it does in ordinary kinds of virus diseases. The second kind of interaction of cell and virus results in neoplasia and in this cell-virus interaction, the virus disappears as an infectious entity.

Dulbecco and his associates in California have shown that the two types of cell-virus interaction can also be demonstrated in tissue cultures.(17,18) Eddy and Stewart, *et al.*, (8) were the first to show that the polyoma virus would produce a necrotizing response in mouse embryo cells in tissue culture. Subsequently, Dulbecco and his associates demonstrated that the polyoma virus could induce a neoplastic transformation of hamster embryo cells that were growing in tissue cultures. Dulbecco and Vogt, (17) moreover, have now shown that hamster cells transformed by the virus into neoplastic cells in tissue cultures can be grown free of virus and hence that the presence of virus is not necessary for cells to continue their neoplastic growth.

It now seems clear, therefore, both from experiments in animals and experiments in tissue culture, that the polyoma virus can act somehow to change the genetic nature of somatic cells so that they become neoplastic, and that it can do this without remaining as such in the cells that it has transformed.

In recent years it has become possible to visualize possible ways by which a virus might induce a genetic change in cells. The essential component of all viruses is either deoxyribonucleic acid (DNA) or ribonucleic acid (RNA). It has become known that the genes in the chromosomes of cells are in effect parts of DNA molecules and that the basis for different genetic properties lies in the sequences in which nucleotides are arranged along DNA molecules. It is known, moreover, that RNA controls most of

the protein synthesis that occurs in cells, and that cells contain all the enzymes necessary to synthesize such further DNA or RNA in cells as is required. It becomes possible to understand, therefore, how viral DNA or RNA, on gaining entrance to a cell, could parasitize the metabolic machinery of the cell for its further synthesis, and hence multiply preferentially and destroy the cell. It is known also that viral DNA can carry genetic information. It has been shown in connection with certain bacterial viruses — those that are involved in the lysogenic systems — that they can engage in two types of interaction with the bacterial cells that they infect. In one type of interaction these DNA viruses, on infecting bacterial cells, multiply within them and destroy them with the liberation of virus. In the other type of interaction, they infect bacterial cells without their multiplying within the cell, but instead with their DNA becoming integrated with the DNA of the bacterial cell so that it becomes part of the genetic apparatus of the bacterial cell, endowing the cell with additional hereditary properties. It is obvious that the two types of interaction between the polyoma virus, which is also a DNA virus, and mammalian cells, demonstrate some similarities to the two types of interaction observed in lysogenic systems of bacteria, and which have been much studied.

All this leads to a very different kind of concept about how viruses could cause tumors than the one held in years past. The older view, held about the few viruses that had been shown many years ago to cause tumors in animals, was that they acted as persisting injurious agents in cells, and that the tumor growth that they caused was actually the result of the cells responding, by proliferation, to the presence of a persisting injurious agent, which was the virus. This older concept of how tumor viruses acted was an important reason for pathologists giving scant consideration to the possibility of viruses being responsible for cancer in man, because cancer

in man gave little indication of being a proliferation occurring in response to a persisting injurious agent. Now, because of the discovery of the polyoma virus, and the work that it has inspired, it is clear that a malignant neoplasm can be a second effect of a virus infection that causes a usual type of necrotizing virus disease, and that the malignant neoplasm so produced can be free from virus and otherwise behave in the same fashion as the spontaneous neoplasms in man with which we are familiar. Hence the polyoma story may be of considerable significance in the search for viruses in man that may possibly cause tumors by the same mechanism.

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CLINICAL LABORATORY SOLICITATION

The Arizona Medical Association frowns upon the practice of laboratory work being done by direct or mail solicitation, especially by those laboratories that are not headed by qualified clinical pathologists.

Professional Committee and The Board of Directors (February 12, 1961).

Diabetes Among the Pima Indians of Arizona

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The Pima Tribe of American Indians in Arizona presents a natural group for the critical study of diabetes as far as certain predisposing factors are concerned. This paper deals with factors involved in establishing a working public health program during the years 1954-1955. We compare diabetes as it then existed among the Pima Indians with diabetes of the white population of the United States as recorded by Joslin(1). We then discuss genetic factors, body build, and diet as these might relate to the high incidence of diabetes in the Pima tribe.

A. The Pima Indians

The Pima tribe is an inbred agricultural group of American Indians who live on government land divided into four separate Indian reservations: the Gila River, the Salt River, the Maricopa, and the Fort McDowell. These four reservations are located to the east and south of Phoenix, Arizona. The Pima Indians comprise 90% of the total population of 7,650 on these reservations and the remaining 10% consists of Indians from other tribes. In the majority of Pima families, income is derived from farming, stock raising, leasing of farm land to white farmers, and agricultural wage labor. The average annual family income is \$1,800 on the Gila River Reservation and \$2,100 on the Salt River Reservation, the two largest of the four reservations. The educational level is low, few individuals having had the equivalent of a high school education.

The average Pima is bilingual, but feels more comfortable speaking his own tongue rather than English.

Obesity is considered a normal configuration for an adult. The traditional diet consists of

beans, meat, tortillas, potatoes, and squash which is being supplemented today by refined foods consisting largely of starches, lard and sugar.

B. Government Medicine

The federal government has assumed responsibility for the medical care of the Pima tribe and, through the Department of Interior's Bureau of Indian Affairs, ran a continuous health program for 50 years. In July 1955, the medical program was completely transferred from the Bureau of Indian Affairs to the United States Public Health Service. At the time of this study in 1954-1955, the government operated a 42-bed hospital located in Sacaton, Arizona, the largest town in the Gila River Indian Reservation. Two doctors lived in Sacaton, worked in the hospital, and carried on field clinics with the help of two public health nurses. The more seriously ill patients and patients with tuberculosis were referred to the Public Health Service's Phoenix Medical Center, 40 miles away, where medical specialists were available.

Among the diseases of importance for the Pima Indians are tuberculosis, infant diarrhea, gall bladder disease, alcoholism, and diabetes

mellitus.

Difficulties were encountered as the study and treatment of diabetes in this special group was begun. Among these were differences in culture, language and diet, along with their acceptance of obesity and ignorance of modern medical concepts. For these reasons, it was difficult to explain the concept of diabetes and its regulation to the patients, and it was difficult for them to follow a diet and eat less of their traditional sugars and starches. The low educational level intensified the above problems. Poverty was also a marked limiting factor, as many felt unable to afford to keep themselves stocked with insulin. The fact that few Pimans owned their own automobiles limited visits to the clinic for treatment and education.

C. Techniques Used to Organize and Develop Community Interest in the Diagnosis and Treatment of Diabetes

Late in 1954, we realized that an educational program must be carried out first in order to motivate those with diabetes to take enough interest in their disease to come for medical examination. In initiating such a program, use was made of the Pima Health and Welfare Committee, a group composed solely of Indians. All Health Committeemen were given instruction in diabetes by the doctor at Sacaton. Each committeeman carried this information back to his respective community and organized a series of diabetic classes to be carried out in his community. Each committeeman was given a list of known diabetics in his area as recorded in the Pima Indian Hospital records. The committeeman paid an individual call on each diabetic, stressing the importance of learning about diabetes and inviting him to the Community Diabetic Class.

A series of four classes was held in each community by the nutritionist, public health nurse, the doctor, and the community's health committeeman. Topics covered were as follows: Diabetes in the Pima Tribe, Diabetic Diet, Urine Testing, Insulin Administration, and Hygiene. Emphasis was placed on local example by citing current or past cases at the Pima Indian Hospital. This emphasis was used to convince the class that diabetes mellitus is a potentially seri-

ous disease with serious complications.

Two main factors were crucial in the success of the community. First, the doctor in charge of the program had to be enthusiastic, genuinely interested and determined to succeed. Second, the doctor had to be known to all the people and this was possible because of his work at the Pima Indian Hospital. He was able to follow diabetic cases from the hospital wards and clinics into the community. This continuity of service, therapeutic as well as preventive and educational, eliminated much of the red tape of referral. The patient, having learned to trust the doctor in the hospital, could trust the same doctor in the classroom.

With the establishment of regular Diabetic Classes locally in several communities, community interest in diabetes developed markedly. Special appointments to see the doctor at the Pima Indian Hospital were given at each class to every diabetic who wished to have a careful history, physical examination, and laboratory examination. Of 283 known diabetics, 90 were sufficiently motivated to seek this additional study, and were seen individually between December 1954 and April 1955.

D. Sources of Data

1. Complete out-patient file at the Pima Indian Hospital Clinic and the Salt River Clinic.

2. Individual Evaluation.

- a. History — The following historical information was obtained from each patient: Name, sex, date of birth, age, degree of Pima Indian blood, mailing address, age at onset of diabetes, dietary history, insulin history, hereditary history with names (including diabetic history in grandparents, parents, aunts, uncles, children, siblings and cousins), past medical history (including history of gall bladder disease, diabetic acidosis, gangrene, tuberculosis, visual difficulties, frequency of infections and cardio-vascular disease): Obstetrical history of female patients (including number of children, neonatal deaths, pre-eclampsia, congenital abnormalities of the newborn and number of children with weight greater than 9 pounds at birth). The past medical history was checked and supplemented wherever possible by information taken from

out-patient and in-patient records of the Pima Indian Hospital.

b. Physical Examination — The following information was tabulated on each individual: Weight, height, blood pressure, visual acuity, eye examination, heart examination, and sensory examination of the extremities.

c. Laboratory Examination — The urine of each individual was examined for albumin, sugar, acetone, and white blood cells. A blood sugar was drawn routinely on each case.

3. Deceased diabetic patient's hospital in-patient records at the Pima Indian Hospital. All available charts from deceased diabetics were reviewed and the following information tabulated: Age at death, cause of death, and year of death.

E. Tabulation and Comparison of the Data with Joslin

1. Incidence

The incidence of diabetics among the Pima Indians is extremely high. The Pima population is estimated at 6,975 and there were 283 cases of known diabetes. This information was gleaned from urinalyses in all cases and blood sugars in about one-half of the cases during clinic visits recorded in a five-year period.

The computed incidence is not complete because most Pima Indians will not visit a clinic unless seriously ill. Incidence is higher among women as they come to the clinic for themselves or their children more often than do men, and their urines are checked incidentally. The rate computed on actual cases known is 4.1% as compared with the 1952 figures of 1.5% given by Joslin (page 20) for the entire United States.

Though a complete study of the entire population could not be undertaken at the time, a sample group indicated a high incidence. The study might be compared with the Oxford, Massachusetts Survey recorded by Joslin (page 43). Oxford has a population of 5,000 and some 3,500 cases were studied. Here, an incidence of 1.4% was found, as compared with the 4.1% among the Pima Indians.

Table 1
BLOOD SUGAR DETERMINATIONS --
90 PIMA INDIAN DIABETICS

Blood Glucose Mg. %	Fasting No. of Cases	3-Hour Post Prandial
Below 139	4	1
140 - 179	17	6
180 - 219	12	10
220 - 259	8	8
260 - 299	8	4
300 - 339	2	2
340 and above	2	6

2. Blood Sugar Determinations

Blood glucose measurements were obtained on each of the 90 cases. If possible, a fasting blood sugar was obtained. If this was not possible, a 3-hour post prandial blood sugar was obtained. Approximately 68% of the blood sugar measurements fell between 140 mg % and 259 mg %. It has been a common belief among medical workers that Indian patients can have very high blood sugars without gross signs or symptoms. Eight of our cases had blood sugar measurements of 340 mg % or above. The highest measurement was 432 mg %. Three out of 8 of these cases were asymptomatic except for polyuria and polydipsia. The other 5 showed significant peripheral neuropathy, lassitude, weakness, fatigue and weight loss, as well as polyuria and polydipsia.

Table 2
AGE AT ONSET OF DIABETES --
90 PIMA INDIAN DIABETICS

Age Groups	No. of Cases	
	M	F
All Ages	28	62
10 - 14	0	1
15 - 19	0	3
20 - 24	0	2
25 - 29	3	3
30 - 34	1	7
35 - 39	1	6
40 - 44	3	13
45 - 49	3	7
50 - 54	5	10
55 - 59	8	3
60 - 64	2	3
65 - 69	0	3
70 - 74	0	0
75 - 80	1	0
Unknown	1	1

3. Age at Onset

Table 2 presents the age at onset of diabetes in the 90 cases more closely studied. There was only one under 15 years, and one over 70 years of age, which compared with figures given by Joslin (page 34). The peak five-year age group in Joslin's study was 50-54. Among the Pimans there were 15 cases in the 50-54 age group, and

16 cases in the 40-44 age group representing the two peaks in our study. Exact age of onset of diabetes in the males of our study was difficult to determine. Sixty-seven of our 90 cases occurred between the ages of 30 and 60.

Table 3
DURATION OF DIABETES —
90 PIMAN INDIAN DIABETICS

Years	Male	Female
0 - 5	19	48
6 - 10	6	12
11 - 15	2	11
16 and above	1	1

4. Duration and Insulin Administration

The Piman visits the clinic infrequently and often does not regard time in the same manner as does the white man, so that his verbal report of the duration is seldom accurate. A Piman is diagnosed as a diabetic incidentally when at the clinic for another condition. Of the 90 cases studied, 67 or 74% fell into the 1 to 5 years duration period. In the 1-year group, there were 8 males and 11 females. Medical care has been more thorough in the last 5 years, so it is conceivable that many of these so-called “recent” cases were, in reality, diabetics much longer than the recorded 1 to 5 years.

Of the 90 cases studied, 46 were taking insulin. It is uncertain whether those taking insulin at the time of the study will continue to do so, as they frequently stop treatment because they neglect to replenish their insulin, or they feel well and discontinue taking the injections. The Pima women were more reliable in taking the insulin than were the men.

5. Sex

Of the original 283 diabetics visiting the government clinics during the survey period, 170 or 60% were females. Of the 90 patients more thoroughly studied, 28 were males and 62 were females, or 31% and 68% respectively. This preponderance of female diabetics is similar to that reported by Joslin (page 39). In our study, females predominated in all age groups except the 55-59 group and the 75-79 group.

6. Obstetrical History

Histories taken on the married women revealed the usual obstetrical complications of diabetes — sterility, neonatal deaths, large

babies, pre-eclampsia, and death from toxemia. Other factors besides diabetes which may have led to these complications were not studied.

Table 4
OBSTETRICAL HISTORY —
62 FEMALE PIMA INDIAN DIABETICS

A. Married women with no children	17
B. Married women with children (average 5.2 children)	44
1. Women with infants over 9 pounds	11
2. Women with neonatal deaths	10
3. Women with pre-eclampsia	7
4. Women with toxemia and death	1
C. Unmarried	1
	62

Table 5
FAMILY HISTORY —
90 PIMAN INDIAN DIABETICS

	No.	Percentage
1. Positive family history (either 2 or 3)	65	72
2. Grandparents, parents, uncles, aunts, children	40	44
3. Brothers, sisters, cousins	48	53
4. Family history (including 2 and 3)	23	26

7. Family History

The 90 cases of diabetes were studied from a standpoint of heredity and this analysis strongly indicates the important role of heredity. 44% of the patients had at least one grandparent, parent, uncle, aunt, or child with diabetes. 53% had at least one brother, sister, or cousin with diabetes. 26% had at least one relative with diabetes in each of the above two groups. Joslin (page 55-56) presents percentages of 15%, 8.6%, and 3.3% respectively for these three groups.

The total incidence of families in our sample presenting evidence of inherited diabetes was 72%. Joslin (page 56) reports a total incidence of 49% in patients with Jewish parentage. In our sample, we accepted a positive family history of diabetes if the relative in question had been given a diagnosis of diabetes mellitus by a medical doctor. There may be a large error of omission when questioning as to parents and grandparents with a history of diabetes, as lack of medical enlightenment in earlier generations may have precluded a positive diagnosis of the disease.

8. Obesity

Kraus(2) studied body-build types among Pima children, employing the Wetzel grid, and

compared them with the white boys and other Indians. His study revealed that at the age of six, none of the Pima boys were in the thin channel, relatively few in the medium channel, and many occupied the obese channel. As they advance in age, this trend becomes more pronounced. Kraus concluded that obesity is characteristic of the body build of the Pima boys, already established at the age of six if not sooner. The obesity continues, and at maturity, adult males are characterized by heavy body build. He could offer no enlightenment as to whether this characteristic is due to a dietary condition or a hereditary constitutional trait. The study on girls showed almost the same phenomenon.

Table 6

WEIGHTS — 90 PIMA INDIAN DIABETICS				
% Weight		overweight		
Above or Below				
Average for Age	Females		Males	
Below 5%	1.6		3.6	
Average	11.3		7.2	
5-10% above	16.1		42.8	
20-40% above	37.1	81.1%	32.1	89.2%
40% and greater	33.9		14.3	

Joslin (page 66) reports that in a thousand diabetics, the maximum weights of only 8% were below the standard weight zone, whereas 15% were in the normal weight zone and 77% were above it.

88.1% of our cases fell into the overweight group. We had no normal age-height-weight scale for the Pima Indians as a group, so we used the Metropolitan Life Insurance Company's scale reproduced by Joslin (page 745) as a normal scale for comparison with our diabetics. In light of the studies of Kraus, it could well be that obesity is a natural condition of the average Piman. If this is true, and we had compared the weights of our diabetics with a normal age-height-weight scale constructed solely for the Pima Indians, a much lower percentage of our cases would have been recorded as overweight.

Joslin (pages 67-68) reports that in a study of 4,596 cases, 78.5% of the males and 83.3% of the females were overweight at least +5%. Of these, 16.5% of the males and 25.8% of the females were in the 40% or more overweight group. In adult Jewish males, 86.8% were over-

weight as compared with 89.2% of the adult Piman males. In adult Jewish families, 94.3% were overweight as compared with 87.1% of adult Piman females. Of the Jewish males, 16.2% were over 40% overweight as compared with 14.3% of Piman males. Of Jewish females, 33.5% were over 40% overweight as compared with 33.9% of Piman males.

Table 7
COMPLICATIONS —
90 PIMA INDIAN DIABETICS

A. By Physical Examination	
Hypertension 150/90 or higher	20
Cataracts	16
Albuminuria 1+ or greater	16
Heart disease	8
Chronic pyelonephritis	5
Peripheral neuropathy	
Transitory (before insulin)	35
Permanent (after insulin)	3
B. By History	
Cholecystitis and cholelithiasis	24
Foot infection, severe	11
Tuberculosis	10
Coma	3
Gangrene with amputation	1

9. Complications

A study of this group of diabetics revealed the complications indicated in Table 7. The most common complication reported is a transitory peripheral neuropathy, and 3 cases showed permanent loss of sensation in the lower extremities. Cholecystitis with cholelithiasis proved to be an important disease as it is also in the non-diabetic Piman. Diseases of the heart were quite frequent, with most of these being arteriosclerotic or hypertensive in type. A large percentage showed a hypertension of at least 150/90. Tuberculosis ranks high, as it does in the non-diabetic Piman population.

Table 8
CAUSE OF DEATH — 40 CASES
DECEASED PIMA INDIAN DIABETICS

Under 50 Years of Age — 18 Cases	
Tuberculosis	6
Coma	2
Kimmelsteil-Wilson syndrome	2
Gangrene, leg	2
Toxemia of pregnancy	1
Hypertensive heart disease	1
DDT poisoning	1
Chronic pyelonephritis	1
Rheumatic heart disease	1
Carcinoma	1
Over 50 Years of Age — 22 Cases	
Cerebral or cardio-vascular disease	6
Chronic pyelonephritis	3
Carcinoma	2
Infections (GI Tract)	4
Miscellaneous	4
Unknown	3

10. Cause of Death

Forty hospital records were reviewed of patients with diabetes who died between 1949 and 1955 and were hospitalized at the Piman Indian Hospital. The ages at death varied from 17 to 83 years. Those who died on the reservation proper, or in other hospitals, are not included in this survey.

Of the 40 deaths, two were attributed to diabetic coma. Both of these were under 40 years of age. Two died with the probable diagnosis of Kimmelsteil-Wilson syndrome (also 40 years of age and under). Seven died of tuberculosis, six of whom were under 50 years of age. Four died of chronic pyelonephritis. Seven died of various types of cerebral or cardiovascular diseases. The remaining deaths were due to carcinoma, gangrene, rheumatic heart disease, and cholecystitis.

Joslin (page 187) reports causes of death of 656 diabetic patients between the years of 1950 and 1952. Of this group, only 1.1% died of diabetic coma; 75.9% died of cardio-renal-vascular disease; 38% died of infections; and less than 10% died of other diseases.

F. Discussion

It is of utmost importance in working toward a satisfactory Diabetes Program with a small minority group such as the Pimas with serious cultural, educational, and economic deficiencies, that the health workers be patient, tolerant, and considerate in their understanding of the differences between themselves and the minority group. An unkind criticism, an intolerant remark, or a sign of prejudice is immediately registered by the group members, and any program initiated from then on can be defeated by passive resistance. Understanding and communication must be allowed to grow through patience, willingness to wait for results, and sympathy on the part of the health personnel. The key to success in our program was a good working relationship between the diabetic patients and the doctor in the Pima Indian Hospital or clinic. A number of these good doctor-patient relationships were carried out into the community where successful diabetes education was instituted, with the nucleus of interested patients being those with whom good contact had already been

established at the hospital. Without this type of relationship paving the way, an educational program among the Pima Indians would have been much less successful.

Except for the high incidence of diabetes in our study, diabetes among the Piman Indian population appears to have many similarities with diabetes as found among the general United States white population as recorded by Joslin. The age of onset is similar with one of the peak five-year groups in the Piman study and the peak five-year group in the Joslin study being age 50-54. There is a higher incidence of diabetes in females as compared with males in both groups. A history of diabetes in the family is more striking in the Piman group as compared with the Joslin group, although Joslin's figures for his Jewish group approach the figures for the Piman group. Obesity is an important factor with Piman diabetics, as it is with Joslin's group of diabetics. The obesity of the Piman seems to be more akin to the obesity of the Jewish group of patients Joslin has studied. Disease complications are similar in both groups, with the exception that tuberculosis seems more prevalent among the Piman group and ranks high as a cause of death in young Piman diabetics.

The findings that stand out as particularly significant are the high incidence of diabetes in the Piman group, the high percentage of relatives with diabetes, and the high carbohydrate diet of the average Piman. To be examined alongside of our findings are findings by Kraus, who, in his study of Arizona Indians, using the Wetzell grid, determined that the bodily configuration of all Pima Indians, that of the obese endomorph, was easily detected by the age of six. That obesity and endomorphy are common to all Pimans is factually acknowledged by all Arizonans who know this Indian group. Another finding pertinent to our discussion is that by Dr. Bertram L. Hanna.⁽³⁾ Dr. Hanna studied Piman blood types and found inbreeding coefficients for various local groups of Pimans which indicate that in some areas the average genetic relationship between marriage partners may even be closer than first cousin. He also found that the Pimans do not all intermarry exclusively within their own tribe. 4% of marriages at Gila Crossing on the Gila River Reser-

vation, 8% of marriages on the eastern end of the Gila River Reservation, and 26% of marriages on the Salt River Reservation, are mixed marriages between a Pima Indian and a member of another Indian tribe. Still, his findings point to a considerable degree of inbreeding among the Pimans.

Five factors, therefore, stand out in the problem of Pima diabetes: High incidence, marked familial history, high carbohydrate diet, body type of the obese endomorph, and inbreeding.

Kraus(4) feels that a tentative explanation for the high incidence of diabetes among the Pima population rests on three basic factors: (1) genetic drift to a small extent, (2) pleiotropy in which a highly adaptive major trait that we do not yet recognize is favorably selected, (3) a strong genetic tendency toward obesity which, in turn, provides a fertile environment for diabetes.

Is the high incidence of diabetes due to a higher "penetrance" of the diabetes-producing gene in homozygotes, or to a greater frequency of this gene, or to inbreeding? What are the effects of body type and diet upon "penetrance"?

It seems probable that many of these questions could be answered by further research on the Pimans. Further study of family pedigrees could help us in determining "penetrance." The Pima Indians represent a group where an attempt could be made to study the carriers of diabetes, and perhaps a test could be devised to detect such a carrier. Persons genetically susceptible to diabetes, and experiments could be contrived to control obesity in diabetic families to see whether or not the onset of diabetes can be delayed. The inbred Pima tribe makes it possible to trace a single gene back through all branches of the family — something that is impossible in a larger, more diffuse population.

On the Gila River and Salt River Reservations, 10% of the Indian population are not of pure Pima stock. Among these 765 non-Pimas we identified the following Indian diabetics: 23 Papagos, 18 Piman-Papagos, 20 Maricopans, 2 Piman-Maricopans, 4 Mojave-Apaches, and 3 Yavapais. The incidence of diabetes among the non-Pimans is 9.0%. These different tribes of

American Indians, if surveyed separately would undoubtedly show a very high incidence of diabetes. Most of these tribes are agricultural in origin and one wonders about the deleterious effects of our refined modern foods on tribes originally sustained by primitive agriculture. On the other hand, Kraus(5) found that diabetes is rare among the Apache Indians, which were formerly predatory and hunting tribes.

The question of deleterious effects of modern foods on the health of the agricultural Indian tribes is one that is frequently raised. Lumboltz visited the Papago tribe in 1906 and felt strongly that the new consumption of lard, starches, and sugars was adversely affecting the health and well-being of tribal members. Has the modern diet of the desert Indian tribes of starches, sugars, beans, tortillas and lard, increased the penetrance of the diabetes-producing gene, causing a high incidence of diabetes among these tribes?

Nutritionists can find an abundant source of research material concerning diabetes by focusing their interests on such Indian tribes with their marked incidence of diabetes.

G. Summary

1. The special cultural problems of the Pima tribe are presented as they pertain to the broader public health aspects of a diabetes program. The importance of sympathetic, patient communication between health workers and tribal members is stressed.

2. The incidence of diabetes among the Pima Indians is 4.1% higher in comparison to other studies on large groups. The incidence of diabetes among non-Pima Indians is 9.0%. The conclusions below apply only to diabetic Pima Indians.

3. The age at onset of diabetes is similar to age at onset of whites — about three-fourths of the cases occurring between ages of 30 and 60.

4. The duration of diabetes, as determined by history-taking only, is considerably less than that among whites, 74% of the cases reported having the diagnosis of diabetes five years or less.

5. Females treated for diabetes represent 60% of the total cases. Males represent 40%. These diabetic females report the usual obstetrical complications of diabetes such as sterility, neonatal deaths, large babies, pre-eclampsia, and one maternal death from toxemia.

6. Seventy-two per cent have a positive family history of diabetes as determined by history-taking only.

7. Complications of diabetes include the following: Peripheral neuropathy, hypertension, cataracts, cardio-renal-vascular disease, chronic pyelonephritis, tuberculosis, cholecystitis with cholelithiasis, gangrene with amputation, and coma.

8. Causes of death include the following:

Diabetic coma, Kimmelsteil-Wilson's syndrome, tuberculosis, chronic pyelonephritis, and cardio-renal-vascular disease.

9. The diabetic problem among the Pimans and possibly other inbred Indian tribes with a high incidence of diabetes can provide a fertile area for future diabetic research. Factors such as diet, body build, family pedigree, incidence, and degree of inbreeding can be studied in more detail with the hope that new knowledge can be uncovered concerning "penetrance" of the diabetes producing gene and the "carrier state."

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The Newer Progestational Agents In Clinical Practice

Robert B. Greenblatt, M.D.

S. N. Dutta, M.B.B.S.

The advent of new potent progestational agents has awakened an interest in their clinical use.

With a better understanding of the physiology of progesterone, these potent oral and long-acting parenteral progestational agents fill a much felt need in our therapeutic armamentarium.

The management of some of the more complex gynecologic and obstetrical problems, particularly functional uterine bleeding, habitual abortion, and endometriosis, has been facilitated greatly.

Progesterone, one of the hormones produced by the ovary (corpus luteum) as well as by the placenta, has been available for clinical use in pure crystalline form for over two decades. It is one of the hormonal agents that has been considerably abused, misused, and misunderstood, and there is much controversy as to its clinical usefulness. Certain clinicians in high places feel that there are no indications for the use of progesterone in clinical practice, while others believe that progesterone and its analogues deserve an important place in our therapeutic armamentarium. What are the reasons for this im-

passe? With the advent of long-acting progestational agents and more potent oral progesterone-like substances, much of the earlier criticisms as to clinical ineffectiveness now may be dismissed.

What is known about progesterone? Progesterone is of importance to the body economy, for it is evidently necessary for reproduction, for true menstruation, and for the maintenance of conception. Although progesterone is effective only in an "estrogenic medium," it is nevertheless anti-estrogenic, and anti-proliferative. Progesterone is a "deciduous" hormone — it promotes a decidua-like reaction of the endometrial stroma, desquamation of the vaginal epithelium, and shedding of the endometrium when its hormonal support is withdrawn. Progesterone is a weak steroid and is rapidly metabolized. After an injection of 100 mg. of progesterone, its urinary metabolite, pregnanediol, can be recovered only during the next 48 hours. Incidentally, only 10 to 15% of the metabolite is found in the urine. During the last month of pregnancy, as much as 100 mg. of pregnanediol may be recovered in a

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Dr. Dutta is a visiting Research Fellow in Endocrinology from the R. G. Kar Medical College, Calcutta, India.

ACKNOWLEDGMENTS

Grateful acknowledgment is made to the following for the generous supplies of medications used in this study.

Dr. E. C. Reifstein Jr., of E. R. Squibb and Sons, New York, New York — 17-alpha-hydroxy progesterone caproate (Delalutin) and 17-alpha-hydroxy-progesterone caproate with estradiol valerate (Deluteval).

Dr. J. E. Gajewski of Parke-Davis, and Company, Detroit Michigan — 19-nor-17-alpha-ethinyl-testosterone, norethindrone (Norlutin).

Dr. J. W. Crosson of G. D. Searle and Company, Chicago, Illinois — 17-alpha-ethinyl-17-hydroxy-5(10)-estren-3-one, norethynodrel (Enovid).

24-hour urine specimen. If that amount represents about 10% of the total metabolic pool, it would seem to indicate that the pregnant female metabolizes almost 1,000 mg. of progesterone per day during the 9th month of pregnancy. There must be a definite need for such large quantities, for it is known that the human body is efficient and not wasteful where hormonal utilization is concerned.

Our early difficulties with the use of progesterone arose from the fact that it was not generally appreciated how weak a steroid it was, nor how rapidly it was metabolized. Dosages were generally too small and should have been administered at least twice a day for effectiveness. Oral progesterone at first was thought to be totally inactive, but finally this notion was dispelled when it was shown that 100 mg., taken orally, was as active as 6 or 7 mg. of progesterone parenterally(1). Since an effective dosage for parenteral use was 50-100 mg., it was found that intramuscular injections in this dosage range were not only expensive, but also proved more painful than injections of other steroidal substances. The administration of progesterone had its serious limitations, and it fell into disrepute.

The first oral progestational substance made available clinically was ethisterone (17-alpha-ethinyl-testosterone). This compound has about one-fifth the activity of parenteral progesterone and milligram for milligram is about three or four times as efficacious as oral progesterone(2). This agent was found effective in the induction of menses in amenorrheics, was occasionally useful in the treatment of dysmenorrhea, but it was a poor agent in the management of menometrorrhagia and threatened or habitual abortion. The first important breakthrough in effective and

efficient progestational therapy came about with the introduction of 17-alpha-hydroxy-progesterone caproate. At last there became available a progestational agent which could be administered in large dosage, was long-acting (10 day effect) obviating the need for multiple doses, and was not painful on intramuscular injection. Furthermore, 17-alpha-hydroxyprogesterone caproate, when administered with a long-acting estrogen, behaved very much like the normal corpus luteum. The normal corpus luteum is functional or active for about 10 days, i.e., from a time soon after ovulation to about 2 or 3 days before the onset of menstruation.

When a single injection of 50 to 100 mg. of progesterone was administered to an amenorrheic female with adequate endogenous estrogen, a menstrual flow (withdrawal menstrual period) occurred in about 48 hours after the injection. When 125 to 250 mg. of 17-alpha-hydroxyprogesterone caproate was administered to such an individual, a menstrual flow followed in about 10 days (range 7-14 days) after the injection. This new agent was found particularly effective in amenorrhea, functional uterine bleeding, in premenstrual tension, mazoplasia, in some cases of dysmenorrhea, and in the induction of pseudopregnancy (Fig. 1) for the treatment of endometriosis. It proved a valuable agent in the management of habitual abortion.

Unusual case history:

Case 1 (G. A. S.) is that of a female aged 28 years. She gave a history of ten consecutive abortions. She was treated by various physicians with different regimens of therapy that ranged from complete bed rest to stilbestrol, vitamins, progesterone parenterally, and ethisterone orally. The abortions re-occurred between the 3rd and

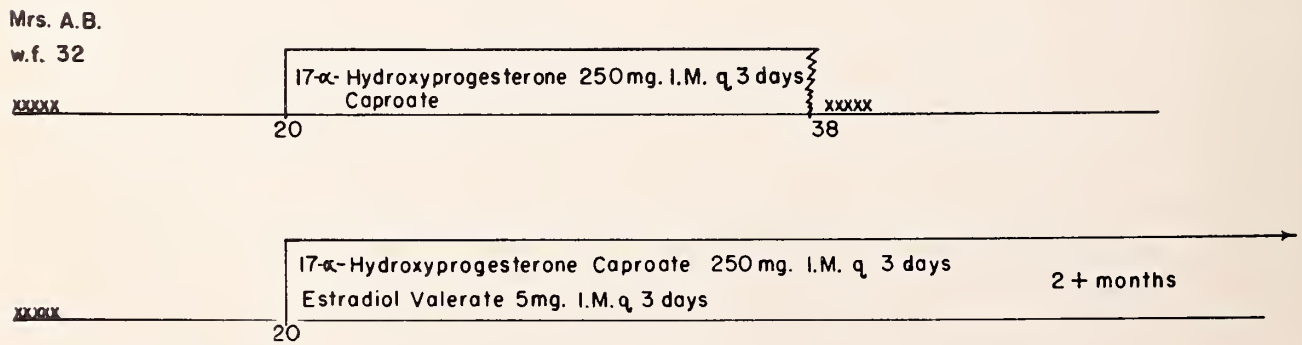


Figure 1: Delay of menstruation for several months is possible when an estrogen is employed with 17-hydroxyprogesterone caproate.

5½ months. In 1956, she consulted the senior author and after complete examination, such causes of abortion as a bicornuate uterus, septate uterus, submucous fibromyomata or incompetent cervical os were ruled out. Excessive fragility of her capillaries was not found. The patient was well nourished and on physical examination she was found normal in every way. She was given Delalutin, 250 mg. at 4 to 7 day intervals from the 6th week of pregnancy until she went into spontaneous labor during the 32nd week. A 2½ pound male child was born, and after several week's management for prematurity, left the hospital in excellent health and has remained well to this day. Ten months after this event, the patient conceived again and she felt that she could carry successfully without medication. She aborted during the 8th week of gestation.

The introduction of 17-alpha-hydroxyproges-

terone caproate and the success encountered in its use have reawakened an interest in progesterone and progesterone-like agents in clinical practice. New oral progestational agents, analogues of 17-alpha ethinyl testosterone, were introduced and these agents (norethindrone and norethynodrel) known as 19 nor-steroids, proved highly potent oral agents, many times more effective than ethisterone. Norethindrone is 19-nor 17-alpha-ethinyl testosterone and is very similar in chemical structure to ethisterone, except for the loss of a methyl group in the 19th position (Fig. 2) and this compound is probably 10-12 times more effective, milligram for milligram, than ethisterone. Norethynodrel behaves very similarly to norethindrone and has about the same potency. Norethynodrel is 17-alpha-ethinyl-17-hydroxy-5(10)-estren-3-one and very similar structurally to 19 nor 17-alpha ethinyl testosterone, except for the positions of the double bond in the ring A (Fig. 2). Both these

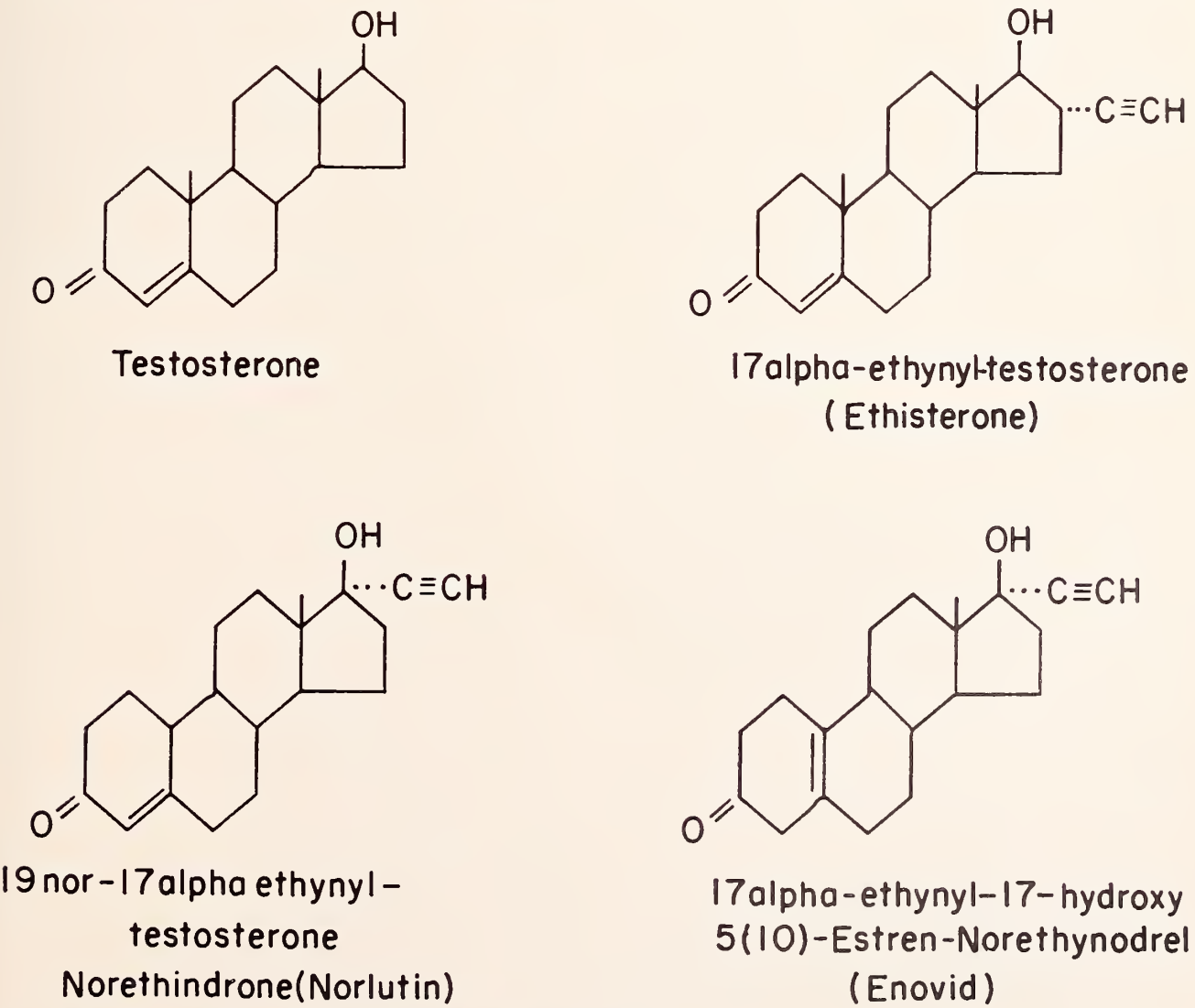


Figure 2: Note structural similarity of the 19-nor steroids to testosterone.

agents are very effective in the treatment of those disorders where progesterone is indicated. Both have estrogen contaminants commercially and the former, and some inherent androgenicity. Their use in habitual abortion, however, is not recommended since these agents, especially norethindrone, because of its inherent androgenicity, has been responsible on rare occasions for masculinization of the female fetus. In two of our cases, the clitoris was slightly enlarged. The enlargement was more evident than real and no treatment was necessary. However, an occasional instance of labial (scrotal) fusion and urogenital sinus has been reported(3). Such findings have been reported following testosterone, ethisterone, stilbestrol, progesterone, norethindrone, and norethynodrel. In all fairness, it must be said that several cases have been encountered in which the mother did not receive any hormonal medication whatsoever during her pregnancy(4).

The most rewarding use for norethindrone or norethynodrel is for the management of functional uterine bleeding. The administration of 30-60 mg. when the patient is first seen will arrest bleeding within 6-24 hours in almost every instance. Then the patient is placed on 20-30 mg. per day until such time as the physician feels that she is ready for her withdrawal period. This will depend on the degree of exsanguination and the state of health of the patient. As a rule, the treatment schedule will vary from 5 to 30 days. A normal withdrawal period will occur 2-3 days after the last day of therapy. Three weeks later, 5 mg. tablets, one daily for 5 days, are administered to induce a withdrawal period. This regimen is repeated at cyclic intervals (each month) until it is felt that spontaneous cyclic menses have set in. This may be determined by the study of basal temperature records, cervical mucus, and endometrial biopsy if indicated.

Case history:

Case 2: Functional uterine bleeding in a young female.

Miss C. D., age 16 years, had a D&C twice for uterine bleeding which proved effective for only 2-4 weeks. When seen by us, she had been bleeding off and on for four months. Thirty mg. of norethindrone was administered daily

for 17 days. Bleeding was arrested within 12 hours. A normal withdrawal period occurred two days after the medication was stopped. The patient was instructed to begin taking 15 mg. of norethindrone daily 21 days after the onset of the withdrawal period; however, bleeding began on the 16th day. She was therefore advised to start her medication at once and to continue for 10 days. Bleeding stopped within 24 hours and a normal withdrawal period occurred. For the next two months the patient was advised to start medication on day 15 and to continue it for 10 days. Then she was advised to take her medication from day 21-25 each month. This schedule is being continued until her basal temperature records reveal that spontaneous ovulation has begun. The patient remains well and fear of prolonged bleeding has been removed.

Case 3: Functional uterine bleeding - menopausal

Mrs. L. M. P., age 46, was bleeding for 7 weeks. A suction curettage was performed and was later reported as hyperplasia of the endometrium. In the meantime, she was given 20 mg. of 19-nor 17-alpha ethinyl testosterone acetate and advised to take medication for the following 11 days. Bleeding was arrested within 6 hours. A normal withdrawal period occurred four days after cessation of therapy.

Newer progestational agents are being made available both for oral and intramuscular use. Acetylation of 19-nor 17-alpha ethinyl testosterone has increased the potency of this 19-nor steroid. Furthermore, two potent homologues of progesterone also have been studied and found to be purely progestational in nature without inherent estrogenicity or androgenicity. These are 6-methyl-17-acetoxy progesterone, and 6-methyl-17acetoxy Δ^6 -progesterone. The first of these is now commercially available and is a very useful progestational agent(5). Two other long-acting progestational agents are still under clinical investigation. One is 6-methyl-17-acetoxy progesterone for intramuscular use; the other, 19-nor 17-alpha-ethinyl testosterone enanthate, and both have been found most promising. When injected at 7-10 day intervals, patients have remained amenorrheic for 6 months with abatement of pelvic discomfort and disappearance of much of the induration in the cul

de sac and utero-sacral ligaments, and decrease in size of tender, palpable ovarian masses. Some patients require the addition of a long-acting estrogen with these progestational agents in order to avoid breakthrough bleeding. In this respect they behave similarly to combinations of 17- hydroxyprogesterone caproate (125 mg). and estradiol valerate (5 mg.) in the management of endometriosis. Although these observations are still in the experimental stage, new hope is offered for the conservative management of endometriosis(6).

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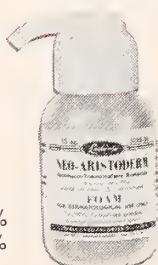
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The Humoral Agent of the Pregnancy Toxemias

William E. Crisp, M.D.

John G. Boutselis, M.D.

The hypothesis that serotonin is the initiating humoral agent of the pregnancy toxemias is presented. A pregnant animal (rabbit) study and a clinical study of both normal and toxic pregnancies revealed no significant differences in serotonin metabolite excretion.

Conclusion: The data herein does not support serotonin as the initiating humoral agent of the pregnancy toxemias.

The name toxemia implies a circulating toxin as the etiological agent of this syndrome. This study explores the possibility of 5-hydroxytryptamine (serotonin) being the initiating humoral agent of toxemia.

THE SEROTONIN HYPOTHESIS

Serotonin (5-HT) is an indole amine that was first isolated in 1947. It is derived from the amino acid tryptophan and the enterochromaffin cells of the gut are the main source of 5-HT production.(6,14,15)

Serotonin is omnipresent in the mammalian organism: being found in the gastrointestinal tract, platelets of the circulating blood,(7,29) lung, mast cells of skin, and the pineal gland in the brain.

5-HT is selectively destroyed by the enzyme monoamine oxidase. Endogenous metabolism is rapid and it is excreted in the urine as a 5-hydroxyindoleacetic acid (5-HIAA).

Serotonin is essentially a pressor amine.(18, 19,23) It is a potent constrictor of smooth

muscle and an antidiuretic. It also facilitates blood coagulation; it increases capillary permeability, and it is known to function in the central nervous system and at the synaptic junctions.

With this brief resume of the present knowledge of serotonin and its pharmacology in mind, our hypothesis of the possible relationship between toxemia of pregnancy and serotonin is as follows:

It is generally agreed that the basic pathophysiology of toxemia is generalized arteriolar constriction.(1,3,4,11) The humoral agent that initiates this vicious circle of vascular spasm is thought to originate in the placenta, since this is the only additional organ that is always associated with this singular syndrome.

It is known that toxemia is associated with both local and systemic conditions that have in common an inadequate placenta that is deficient both histologically and clinically. Toxemia has its highest incidence after the 28th week when the demands of the pregnancy are at their acme. Bartholomew(2) has demonstrated an increased number of infarctions in these placentas and Assali has shown that the decidual vessels show

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increased atheromatous deposits in the intima. Clinically we know that these placentas are associated with a relatively high incidence of premature separation and malnourished premature infants.

In diseases that are known to be associated with generalized vascular damage such as diabetes, chronic renal disease and essential hypertension, these placental lesions have a much higher incidence, and toxemia is more common.

Toxemia is also more common in susceptible primiparous patients who have increased their vascular load by excessive weight gain; twin pregnancies, which have a greater placental demand; elderly patients who have a more brittle vascular tree, and in malnourished patients who have poor capillary and vascular tone with increased capillary permeability.

All of these conditions listed have one basic common denominator—placental ischemia. With placental ischemia comes tissue death, blood clotting with fractionation of platelets and release of serotonin, a known pressor amine.

Although the placenta is known to be rich in monoamine oxidase,(9) the deactivator of 5-HT,(23) the activity of this enzyme is extremely sensitive to changes in the oxygen tension of the environment in which it is operating. A relatively slight fall in oxygen tension causes a profound inhibition of enzyme activity. This placental enzyme shows a 50% inhibition of activity as the oxygen tension of the gas phase with which the enzyme suspension is in equilibrium is reduced from 20% to 5%, with an even more rapid rate of inhibition as the oxygen tension falls still lower.(8) Therefore, with the placental ischemia associated with toxemia, monoamine oxidase would be less effective in deactivating serotonin because of the decreased oxygen tension.

Thus, we concluded that serotonin might be the humoral agent that causes the initial ischemia of the kidney,(16,25) which in turn has been proved to produce vasopressor substances. The renin formed from the initial renal ischemia acting on the renin substrate forms hypertensinogen or angiotonin causing generalized vasoconstriction, which is the basic pathophysiologic change in the vicious circle of pre-eclampsia.

With hydatidiform mole and choriocarcinoma, tissue necrosis is produced by a rapidly growing trophoblast with minimal blood supply. Platelet fractionation, and release of serotonin follows.

With a prolongation of the generalized ischemia, the process gains momentum by focal tissue necrosis in other organs and further release of serotonin and thromboplastin. It is the releases of thromboplastin following ischemic tissue death that gives the morbid microscopic lesions that have been considered pathognomonic of the pregnancy toxemia.(20,21) This, of course represents a far-advanced toxic process, since Dieckman(5) demonstrated that in the vast majority of patients with pre-eclampsia, classical renal and hepatic lesions are not present.

The electrolyte and fluid disturbances of toxemia are secondary to the impaired renal function associated with the normal adrenal hyperplasia of pregnancy.(10)

Once the patient is delivered, the initiating factor is gone, and the circulatory load is decreased. The vast majority of patients will then re-establish vascular homeostasis, although those patients with a low vascular-renal reserve such as occurs in chronic renal disease, diabetes, etc., do have permanent effects.

METHOD OF STUDY

The problem of establishing whether serotonin was or was not associated with toxemia was approached from both the experimental and the clinical sides.

ANIMAL STUDY

Fifteen domestic rabbits which were in the last trimester of pregnancy (20 to 22 gestation days) were given the renal blanching dose determined by Page and Glendening(13) of 0.007 mgm. of serotonin base*(22) per 100 gm. of

body weight every 8 hours for 3 or 6 doses. This dose was given via the lateral ear vein over a 2-minute period.

Observations

During the injection, there was marked blanching of the ear secondary to vascular

*Serotonin base furnished by Research Laboratories of the Upjohn Company.

spasm. Within 30 seconds after completion of the injection, the rabbit would hyperventilate. This would continue for about 90 seconds and would be followed by a clonic seizure and exacuation of bowel and bladder. This period of hyperactivity was followed by a period of tonic contracture, stupor and oliguria that varied in each animal.

We were unable to obtain satisfactory blood pressure readings, although most authorities (10, 12,17) concur that serotonin causes only a transient hypertension followed by a hypotension.

Six rabbits (40%) aborted immediately following or within 12 hours of the above episode. Three additional rabbits delivered stillborns and all of the remaining animals delivered prematurely.

Although there was a temporary decrease in urinary output, no increase in 5-hydroxyindolacetic acid was found.(26,27) All animals had proteinuria during the first 24 hours.

A complete autopsy of each animal failed to show any of the lesions usually thought to be associated with toxemia except placental hemorrhage, which was found in all animals in various degrees.

In five additional animals, typical pathologic lesions of toxemia were demonstrated when thromboplastin was given with serotonin as described by Schneider.(20)

CLINICAL STUDY

From September 1, 1956 through September 1, 1957, a total of 63 determinations were made on 40 patients from the Obstetrical Clinic of Ohio State University Hospital for levels of 5-hydroxyindolacetic acid in the urine. These patients were divided into four groups as follows: (1) normal pregnancy and pregnancy complicated by non-toxic complications; (2) pregnancies complicated by pre-eclampsia; (3) pregnancies complicated by eclampsia, and (4) toxic pregnancies associated with placental abruption.

Twenty-four hour urine collections were obtained on all patients. The method for determin-

ing 5-hydroxyindolacetic acid was that of Udenfriend et al.(26,27)

None of the patients had eaten bananas or other foods with a high serotonin content for at least 48 hours before the urines were taken. In the toxic patients, many of the urines contained metabolites of the antihypertensive drugs, Reserpine and Hydralazine. Although these drugs are serotonin antagonists, they do not affect the urinary excretion of 5-hydroxyindole acetic acid.

RESULTS

Sjoerdsman, Weissbach, and Udenfriend established the normal of 5-HIAA excretion in the urine as 9 mg. or less per 24 hours.(23) All of the data collected on our pregnant patients, both normal and toxic, demonstrated a normal urinary 5-HIAA excretion in all groups.

CONCLUSION

The placental hypothesis originally proposed by Page and Glendening suggested that the generalized clotting process that occurred through the body in some cases of abruptio placentae fractionated a large mass of platelets, thereby liberating the pressor amine serotonin into the blood stream which resulted in renal ischemia. This hypothesis appeared reasonable to us and we reasoned that if it could occur with a clinical placental separation, why could it not occur with a subclinical separation secondary to placental ischemia as previously discussed?

From our clinical and experimental studies we concluded that:

(1) Serotonin, when injected into pregnant rabbits in the doses described, can cause a transient clinical picture of eclampsia associated with placental hemorrhage, since it is known to be a strong stimulant of smooth muscle.

(2) Tissue death, liberation of thromboplastin, and clot formation are necessary for the morbid anatomy found in toxemia.

(3) The level of 5-HIAA excreted in the urine is probably not a true reflection of the circulating 5-hydroxytryptamine, since the animals that received large doses did not show an increased excretion of 5-HIAA.

(4) The measurement of the 5-HIAA in both normal and toxic pregnant patients was found to be within normal limits.

We suggest that ischemic placental necrosis with resultant blood clotting liberates the pressor amine that initiates the syndrome of toxemia. Serotonin could still be this pressor amine although our study would deny this hypothesis. Two additional facts that support this conclusion are:

(1) Monomine oxidase inhibitors do not give a pre-eclamptic syndrome in pregnant patients, and

(2) The incidence of toxemia is not increased in pregnant patients with a carcinoid tumor.(24)

SUMMARY

A combined animal and clinical study was conducted to determine whether or not 5-hydroxytryptamine (serotonin) was the humoral factor in the production of the toxemia syndrome of pregnancy. Our data does not support this hypothesis.

TABLE I: NORMAL PREGNANCIES FROM 28 WEEKS TO TERM

PNT.	5-HIAA Mgm. per 24 hrs.
J.C.	6.31, 5.32
B.C.	2.27, 3.01
A.C.	2.57
I.H.	2.93, 2.68
R.H.	5.19, 4.72
A.J.	4.15
E.W.	3.93

TABLE II: NON-TOXIC PREGNANCIES WITH MEDICAL, SURGICAL AND OBSTETRICAL COMPLICATIONS

PNT.	5-HIAA Mgm. per 24 hrs.
E.M.	3. Grand mal epilepsy
E.N.	6.91, 6.32 Grand mal epilepsy
M.P.	3.01, 4.13 Chronic hypertensive vascular dis.
N.P.	1.20, 2.53 Chronic hypertensive vascular dis.
E.W.	5.61, 5.72 Chronic hypertensive vascular dis.
P.W.	3.78, 6.02 Hypochromic anemia
E.R.	5.23, 5.79 Diabetes
D.R.	1.82, 2.53 Diabetes
N.H.	6.30, 4.36 Placenta previa
M.C.	2.69 Bleeding peptic ulcer

TABLE III: PREGNANCIES COMPLICATED BY TOXEMIA

Pre-eclampsia	
PNT.	5-HIAA Mgm. per 24 hrs.
D.A.	7.52
E.A.	2.49, 4.23
R.B.	2.52, 2.41, 3.03
E.B.	5.31, 4.82

S.B.	2.52
B.D.	4.80, 3.72
O.D.	5.18
E.D.	1.52, 1.83
E.E.	3.00
R.E.	7.24, 8.19
F.J.	3.86, 5.24
R.H.	1.76
G.H.	3.51
H.K.	2.62, 0.50

Eclampsia

J.C.	3.72
M.N.	4.23
D.M.	2.01
D.E.	1.50
H.S.	6.37

Toxexima associated with Placental Abruption

M.H.	1.21
C.M.	1.36
E.W.	3.92
H.G.	2.86

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Florence Nightingale ...A Great Woman

Josephine Barger, R.N., M.N., M.S.

In 1860, just 100 years ago, England had just finished a small war in the Crimea and at that time, as in the present, had a queen on the throne. United States was about to start a great war in which there were more casualties than in all her other wars combined, including both World Wars and Korea. Huge covered-wagon trains were crossing the Great Plains, taking months to get to California or Oregon. But the Overland Stage, in a route through El Paso and Tucson, carried mail and passengers from Tipton, Missouri to San Francisco in only 25 days and for \$200.

Not too long before, the plague had spread up the Mississippi Valley and over the plains. Anaesthesia had been in use for only a few years, and the causes of infection were not yet known. Lister did not publish his paper until 1866. Many doctors were still bleeding and purging their patients. Surgeons carried their instruments in their pockets or little black bags and prepared to operate by rolling up their sleeves and sticking threaded needles in their lapels or the front of their shirts.

Hospitals generally were filthy, uncomfortable places, used only by the very poor who could get care in no other way. Most nursing care was given only by members of religious orders or other well-intentioned amateurs, or by paid

drudges often similar to the immortal Sairey Gamp.

One strong-willed, obstinate, and effective woman, with an infinite capacity for taking pains, was able to effect sweeping changes in hospitals and the care given to patients at that time. Florence Nightingale is best remembered as the gentle "Lady with the Lamp." But she was no sweet, shy, delicate flower of Victorian womanhood. She was a hard boiled pro — bent on codifying the techniques of nursing and converting them from the self-learned, well-intended and inept ministrations of the amateur into the trained, equally well-intended, effective procedures of the professional.

INCREDIBLE SUCCESSES

Her influence and accomplishments would have been remarkable at any time in history. In Victorian England they were incredible. There were two important factors in her successes. Her position in society at that time could not be questioned. Her family moved naturally among peers and cabinet ministers and she had intimate friends in that group. In those days, even more than today, that set was a narrow one. With her friends in high places, she was able to go directly to the Queen, and she received attention when she spoke.

In addition, she was most personable, using charm and great tact in expressing her opinions.

She had prepared herself as few were able to do, and always used facts rather than impressions to give substance to her proposals. She had great tenacity and singular interest in all matters concerning hospitals and patient care.

In 1857, after her return from the Crimea, when asked by the Sanitary Commission what hospitals she had visited she replied, "I have visited all of the hospitals in London, Dublin, Edinburgh, many county hospitals, some naval and military hospitals in England; all the hospitals in Paris and studied with the Sisters of Charity; the Institute of Protestant Deaconesses at Kaiserwerth on the Rhine, where I was twice training as a nurse; the hospitals in Berlin and many others in Lyons, Rome, Alexandria, Constantinople and Brussels; also war hospitals of the French and Sardinians."

At the time she went to Scutari in November 1854, she was 34 years old and had been Superintendent of Nurses at a nursing home in Harley Street. She was strong, mature and experienced, and prepared for what she might find there. When one of her group of nurses said, as they approached the military hospital, that they should immediately set about "nursing the poor fellows," she drily remarked that the "strongest will probably be needed at the washtubs."

REAL WORK BEGINS

Here, in the barracks hospital at Scutari, her real work began. The official viewpoint, as expressed by the British Army Medical Corps, was that things were about as they could be expected to be. But not so the viewpoint of Miss Nightingale, as well as that of more impartial observers, some representatives of the press. She found that worst of all messes, where no one is to blame, just routine confusion and administrative collapse. Supplies were rotting in warehouses; the hospital had been built over sewers and was unbelievably filthy and filled with vermin; it contained four miles of beds, so close together one could hardly walk between them; the commonest things were lacking, no basins, no towels or sheets, no soap or brooms or mops, no trays, or plates, or knives, forks and spoons, no laundry; there were very few stretchers or splints, very few bandages or dressings of any kind; very little drugs. The only care given was

by convalescent soldiers not quite ready to return to duty.

Before leaving England, she had been told no supplies were needed, but she had brought many things with her and had adequate funds to buy other necessary items locally. Her commission to the Crimea had stated that she could take nurses only to the wards where requested by the medical officers. Some requested this immediately. And since she had the only available supplies at her personal disposition, she soon had her nurses in every part of the hospital.

She reorganized the kitchen so that for the first time the men had warm food that was fit to eat; she started a laundry; she provided the commonest material objects, the most ordinary cleanliness, the most rudimentary habits of order. She saw to it that the doctors' orders were scrupulously carried out. And men lived who would have died before she came.

LADY WITH THE LAMP

Late at night, she made her rounds of the hospital with her lamp to see that the things that should have been done, were done. The soldiers developed an almost hysterical devotion to her that proved to be one of her great strengths when she returned to England.

Her other ace in the hole, which she never hesitated to use, was her direct line to the war ministry and her long and confidential reports to her great friend, Sidney Herbert. Here, too, she met Dr. John Sutherland who became her confidant and advisor for over 30 years.

After prodigious labors for almost three years, she fell ill and returned to England in 1856 to find herself the idol of the nation. Because of that, and because of her powerful friends, she occupied an extraordinary, interesting and influential position for many years. She actually had, in effect, the power of a cabinet minister without portfolio, dealing with various aspects of reform in the army medical services.

For years she saw Sidney Herbert, who was in the war ministry, almost daily as indicated by their voluminous notes and memoranda. He

had the one thing she lacked and could never have, the public power and authority belonging to a successful politician. Her notes and letters show that she teased and bullied, threatened and cajoled to get her ideas accepted. And she was effective. The final report of the Sanitary Commission was almost word for word what she had recommended.

At the same time she wrote and had published two small but important books; *Notes on Hospitals* was published in 1859, *Notes on Nursing (What It Is, and What It Is Not)* in 1860. And that same year, 100 years ago, she was effective in establishing the Nightingale Training School for Nurses at St. Thomas Hospital. Even then, some doctors were protesting a school for nurses, wondering where they could then get nurses to care for patients. But she successfully demonstrated several things in her school. In accepting and training secular nurses, she overthrew the medieval tradition that respectable nursing could be carried on only by religious orders. She established regular instruction in nursing and medical subjects with a certificate to be given as evidence of a certain competence. And she established nursing supervision of nursing and nurses.

PATTERN STILL HOLDS

There was almost immediate recognition that nurses who completed the courses in her school were generally more satisfactory and there was a great demand for their services by doctors and by hospitals. Nursing schools since that time have developed from the ideas she demonstrated there

Many of her succinct comments in *Notes on Nursing* are as appropriate and applicable today as they were 100 years ago. Her definition of supervising or being in charge was "to see that those things that should be done are always done, whether you are there or not." She emphasized regular instruction because "skill develops from controlled, corrected repetition of an act. It is the product of experience and criticism and intelligence." Again, "Between amateur and professional, there is a difference not only in degree, but in kind." In her clear, concise directions for writing nurses' observations, she observes that doctors are more interested

in the notation of facts about patients than in the nurse's opinion of those facts. She urges nurses to take responsibility for the complete environment of a patient, what today we call "total care." She reminds nurses that they are not doctors, and should never undertake to give medical advice or recommend medical treatment. She felt that true nursing was wide enough and deep enough and required enough skill and intelligence to be a most satisfactory profession.

During these years, she was widely consulted about hospital construction. Few if any people of that time had more knowledge about what was needed in hospitals.

She had voluminous correspondence with Dr. Farr, who was virtually the founder of medical statistics. At one point she thanked him for the "delicious tables of statistics" he had sent to her.

In 1859, when Dr. James Paget was treating one of her maids, she asked him if he would help her by filling out some statistical forms especially prepared for hospitals. He agreed to do this, writing her three months later that St. Bart's had appointed a registrar and adopted the standard forms.

A GREAT WOMAN

Miss Nightingale lived for 90 years. For more than half of this time, from 1857 to 1910, she lay in a bed or in an invalid's chair, never seeing more than one visitor at a time, never more than three or four in a day. She was not paralyzed. No one ever stated that she had an organic disease. When anything unpleasant happened she had palpitation, rapid breathing and pain in her heart region. And in the meantime, everyone came to see her at her convenience. She must not have found this too dismaying.

During most of this time, confined to her room, she did an immense amount of work, reading, collecting volumes of information, writing countless letters, putting together elaborate memoranda and tables of statistics, perusing innumerable notes, many of which are preserved in 150 large volumes in the British Museum. She accomplished most of what she set out to do to the benefit of us all. She was a great woman.

Squaw Peak Notes

Skunk Boats

By Dry Gulch Jake

THESE romantic remarks gained no inspiration from persual of "The Paprya of Thebes"; no emendation from Vesalius, "De Fabrica Humanis Corpis," but are prompted by an article on "Skunk Hydrophobia" which appeared in the Prescott Arizona Miner Journal, 1908.

"In the throes of unutterable agonies, J. W. Scantlin, the trapper who Saturday was brought to the County Hospital a victim of hydrophobia, died at midnight Sunday. — A month and ten days passed after the skunk bite, and before the victim noted anything wrong. Three days later — he was a corpse."

Dr. C. E. Yount, a pioneer Prescott physician, reported on "Skunk Hydrophobia" at the Annual Meeting of the Arizona Medical Society, May 10-20, 1909. "After careful investigation, I am of the opinion, that the skunk is not more the cause of hydrophobia than the dog. It seems that while it is possible for one to have hydrophobia after being bitten by a skunk, the idea has gained ground, to such an extent in The Southwest, that all skunks are called "hydrophobia skunks."(1)

Yount reported,(2) two fatal human cases, of his own, with four fatal cases from other counties in Arizona. Eighteen cases of skunk bite were reported between 1907 and 1909, the period of his study. Five of these developed rabies and all died.

At that time the Pasteur treatment for rabies was given only at special Pasteur Institutes. The nearest, or at least the one most frequently used

by patients from Arizona, was located in Chicago. Yount further noted, "From the record of the Chicago Pasteur Institute for the past eighteen years, New Mexico has sent them only four cases for treatment as against thirty-three from Arizona. The Pasteur Institute at Austin, Texas from 1904 to 1908 received five cases from New Mexico and four from Arizona."(2)

In 1875, Janeway,(2) while on duty with the Army, reported ten fatal cases of rabies from skunk bite on the then Kansas Frontier, "Fort Hayes." The skunk was a well recognized cause of distribution of rabies and, for Arizona at least, the skunk was the most prolific source of infection; in fact, almost the only cause of rabies, quite reversing the order of frequency given by several authorities for other parts of the United States. Yount further deduced "In the absence of experimental proof, we believe that there is no such thing as a "hydrophobia skunk" per se, that all skunks are like other animals susceptible to rabies." And "When a skunk, an animal of nocturnal habits, generally timid, attacks man or other animals, accept this as evidence of rabies and have the victim receive Pasteur treatment."

Newspaper accounts of the danger of hydrophobia skunk bite were not uncommon, Joseph Miller, an authority on early news accounts in The Territory and State, has several such accounts in his files.(3) (4) (5)

The fear of hydrophobia skunks became so great that the Department of Interior sent Prof. H. L. Simmons to the desert areas of California and Arizona to find out the exact species of

hydrophobia skunks.(6) He stopped over in Flagstaff to see about the extermination of the skunk population. This same authority reported that seven persons died on the Arizona Frontier in a six weeks period from the bite of hydrophobia skunks. (1910) The learned professor also stated these skunks have a white stripe across the back and spots on the sides. To this country boy it seems the professor was confused about whether he was dealing with a broad stripe, narrow stripe or spotted (civet cat) (spigole)(7) variety of chemical warfare quadraped.

The account of the site of the bite usually related it was the nose or face, rarely a toe. The skunk is usually a slow, pedantic character, unafraid of Homo sapiens but not prone to attack. Therefore arose the great fear of the hydrophobia skunk and the belief that it must be a separate and distinct species of skunk. Well informed students, as Doctor Yount, were not so deluded.

A decade later the Salt River Valley was reported by Nelson(2) "The last record shows twenty-two cases of rabies (dogs) in a three month period in the Salt River Valley." (1917). (8) A plea was made for the control of dogs and no mention was made of skunk bites. He advised sending the brain of all dogs suspected of rabies to "The Warner Watkins Laboratory" for examination before treatment was started.

All writers of this period classified anti-rabies inoculations as treatment and commented upon the "cures." By this time the material was avail-

able to private physicians and the trip to the Pasteur Institutes no longer was necessary.

Now fifty years later careful epizootological work indicts the bat as a principle animal reservoir with epizootics waxing and waning amongst the desert dwellers such as the bats, coyotes, dogs, foxes, ground squirrels, skunks and wolves.

"Hydrophobia skunks," were real enough to the Arizona Cowhands. As late as the "roaring twenties" skunk boats were made to order by a local tent and awning purveyor.(9) These "boats" were made of heavy canvass, about six by three by two feet high. This could be folded and carried in a bed roll, opened it could be staked out, held by a stick at each corner with the bed roll thrown in it for sleeping at night. One cow puncher put it this way, "I wasn't much put out by rattlers, but to be bitten by a hydrophobia skunk, man that would be fatal."

The skunk boat has joined the prairie schooner in limbo. The schooner has suffered, of late, rediscovery by television.

Now "home on the range," hardly a pick-up cowpoke has ever heard of a skunk boat!

(John W. Kennedy, M.D.)

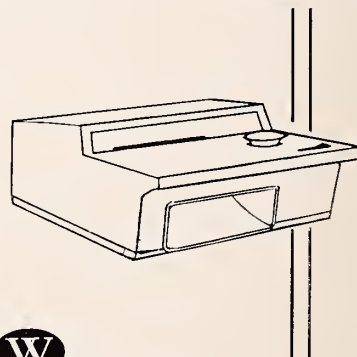
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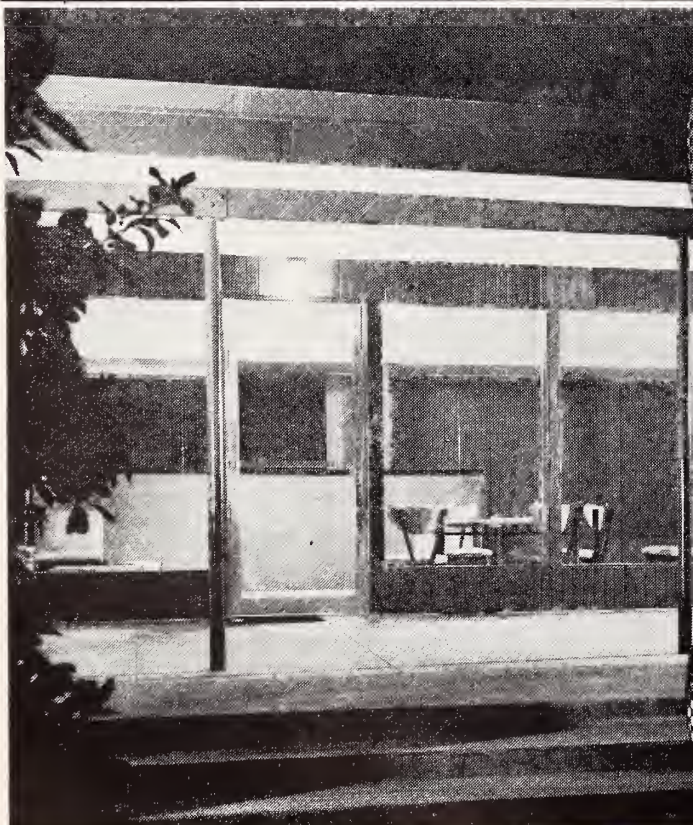
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Medical Society of the United States and Mexico

Presidential Address

W. R. Manning, M.D.

Members of the Medical Society of the United States and Mexico, distinguished guests, ladies and gentlemen:

I should like first of all to give a friendly greeting to the fine friends who have given so generously of their time to be here with us today:

Governor Juan Gil Preciado
Governor of the State of Jalisco

Mr. Adolph B. Horn
United States Consul

Dr. Juan I. Menchaca
Mayor of Guadalajara

Dr. Roberto Mendiola
Rector of the University of Guadalajara

Dr. Ignacio Chavez
Professor of Surgery
University of Guadalajara School of
Medicine

It is with sincere appreciation that I thank Dr. Ignacio Chavez for his untiring work in the formation of this meeting. I can assure you that whatever Dr. Chavez does is done incom-

parably. The fact that he will be our next president leaves me with a confident feeling that no one could do a better job. I should also like to compliment, and most heartily, the various members who have given so much of their time in aiding in the preparation of this meeting.

We are greatly pleased to once again have the privilege of visiting this beautiful and charming city of Guadalajara. My friends and I never will forget the cordial and warm reception, the proverbial Mexican hospitality, the graciousness and friendship that we enjoyed during our visit to this city two years ago. We have held fond desires to return to Guadalajara in order to renew once again mutual friendships. I have always admired this city of hospitality and its inhabitants who stretch out the hand of welcome and say to us, "My house is your house."

I must apologize for not having given to this organization, which, in my opinion has an incomparable future, all of the zest and energy that it so well deserves. There have been many things crossing my mind that could and should be put into effect: monthly newsletter to all of

our members; development of a so-called Action Program; visiting at the time of meetings in the great States of Sonora, Sinaloa and Jalisco; a study of the serious problem facing the Mexican interns and residents in our hospitals; a meeting with Public Health authorities and the Governor of Arizona to offer any and all assistance by our organization; establish a series of lectures at the Guadalajara Medical School, and other schools, as well as at meetings in the various states of Mexico; work out a method of "clerkship" in our hospitals for especially deserving students; development of a directory of members of our society which would help in travel in our respective countries.

These and many other things have been ideas of approach referable to the growth of our organization that I would liked to have put into effect. They merely scratch the surface, and I can only offer to you that these as well as other activities might be considered as a gradually developing future in our Action Program.

History has shown that the United States has a very deep common interest with Mexico. This sense of mutual interest dates back to the times of the Monroe Doctrine and has led to the development of many international activities. In the 1930's, through the establishment of a Good Neighbor Policy, the United States showed a resurgence of activity. I believe at present we are once again seeing the development of a historic period in international relations between our two countries which will undoubtedly produce marked achievements. The place of medicine in this changing and developing concept of international relations must undoubtedly be prominent. The calibre of physicians in our two countries, in my opinion, is such that they must be community leaders. As community leaders they will take their place on various committees, etc., dealing with public service. Through the medium of this Society and through the intelligence and devotion of its member doctors, I expect the future to show steps forward in the binding together of our great countries. With the advent of ease and rapidity of transportation the world has grown a great deal smaller. This will allow greater interchange of people with its associated exchange of ideas, problems, etc. Our organization has an opportunity to grow forward with

this new international look that is taking place all over the world.

I, for one, find that Mexico is a magnificent country containing a wealth of knowledge and I wish to take advantage of the friendliness that has been expressed so sincerely over a period of many years. As the wealth of this country, in regard to its culture, friendliness and interest grows and becomes understood by the physicians of the United States, you can expect a large influx that at the start will be recreation bent, but who will come to realize that there are great possibilities to learn in Mexico. They will come to profit greatly.

Our organization has a very basic value. It provides the formation of a framework with which we can conduct mutual relations and will have an opportunity to pool our efforts toward common goals. I know of no organization that has a better opportunity to forward the principle of unity between our two countries more than this one. This is one of the basic platforms of our constitution.

This Society is composed of devoted, intelligent and conscientious individuals which need only specific problems to solve in order to bring out a dedicated effort.

We are now at the close of another year and are about to enter into another administration of our Society. However, the past, present and future are not isolated as separate years in this organization and our story should be one of an unbroken chronicles. We should build on the legacy of previous administration. We must continue serving society with greater knowledge, experience and skill. It is to the dedication of these ideas that our Society must be founded and through mutual understanding and cooperation between doctors of our great countries we can, with time, build an organization that will accomplish the aims and principles to which we are dedicated.

Tomorrow grows out of today just as today was born of yesterday. The basic pattern, of course, remains the same but the particulars naturally are changed to match special tasks that confront us each year. The program of this Society should confront these tasks with positive measures working together in unity and forgetting any unhealthy selfish interests. This or-

ganization must consider that it was born of mutual understanding and need, and we must develop cooperative approaches to the problems that obviously lie ahead.

A nucleus such as ours can bear fruit and maintain its ideals only through close cooperation between all parties concerned. It is my hope that we can, by mutual respect and admiration, solve problems if we would but take a single course. I have reference specifically to the need, in my opinion, of formation of a definite platform which will keep the Society working together and not allow a lapse or a period of inactivity. I have the feeling that this Society can succeed and grow only if we maintain liaison with one another and have objectives to which physicians of both of our great countries can extend their efforts. A Society cannot be maintained on a single annual meeting alone.

Let us develop activity which might be called an Action Program. This can be in the form of issues either large or small that face us either as physicians or as citizen members of the Republic of Mexico or the United States of America. Many of our problems will face us as individual groups of physicians. However, others can best be solved by mutual cooperation between the physicians of our countries. But to achieve we must have a goal. In this program we might consider projects that answer local needs, projects that have an international flavor. I do feel however that we must concentrate on a minimum number of projects rather than dissipate valuable energy on a multitude of enterprises.

If our organization is to command national respect and accomplish a worthwhile purpose we must obtain local, national, as well as international prominence. This can come about only by action — either by our national components or together as an international group. Perhaps these words are ambiguous but I maintain the feeling that our growth will be decidedly limited and our value curtailed if we do not come forth into prominence by means of accomplishments.

I should like to suggest that we recognize the fact that our good friends from Mexico will be the stimulating leaders of this organization. Until the time comes when we have sufficient prestige and standing within the United States, our

Society will necessarily be located mainly in the Southwest. One of the big problems in the United States facing the physician is a wide diversification of effort from too many societies. Mexico presents to my way of thinking, particularly when you consider the fine physicians of Jalisco, Sinaloa and Sonora, an opportunity to develop an organization that will be equaled by none. As a matter of fact, I feel that this organization can, should and will develop into a leading, if not the leading, medical group in the entire Republic of Mexico.

With prestige goes an acceptance of opinion. To influence society so that our aims can be realized and to have effect on problems our opinion must be held in high regard. With this goal in mind I should like very much to suggest, as I did some years ago, that instead of alternate meetings between the two countries we should have at least two or possibly three meetings in Mexico in successive years and then switch to the United States for one year.

I should also like to point out that in my opinion the meeting should be under the sponsorship and direction of the President-elect. I can assure you that the success of this meeting and its splendid character is entirely due to Dr. Chavez, our esteemed President-elect, and his very hard working incomparable committees. I take no credit whatsoever. I feel that the meetings should be established, if possible, in such a way that the President-elect as he comes into office would do so with a meeting that has been formed under his direction.

The thoughts that I have presented to you today are my own and have been stimulated after careful consideration as to the growth of our Society. That it has a place and satisfies a need — I have no doubt. The methods to be used to place it in its proper position of value require, I am sure, much more thought and deliberation. Of one thing I am convinced and this with all my heart — it must continue to grow and take its place in each of our great countries as a vigorous and leading Society composed of physicians dedicated to the aims and ideals so well expressed in our constitution. A more wonderful opportunity has never existed wherein men drawn together by the bonds of medicine can do so much for each other and for their respective great countries.

Discurso Presidencial

Dr. W. R. Manning

Miembros de la Sociedad Médica de los Estados Unidos y Mexico, distinguidos huéspedes, damas y caballeros:

Ante todo quiero dar un amistoso saludo a los muchos finos amigos que tan generosamente han dado de su tiempo para estar hoy aquí con nosotros:

Gobernador Juan Gil Preciado
Gobernador del Estado de Jalisco

Senor Adolph B. Horn
Consul General de los Estados Unidos

Dr. Juan I. Menchaca
Presidente Municipal de Guadalajara

Dr. Robert Mendiola
Rector de la Universidad de Guadalajara

Dr. Ignacio Chavez
Professor de Cirugia de
Universidad de Guadalajara

Es con sincero aprecio que doy las gracias al Dr. Ignacio Chavez por su incansable esfuerzo en la formación de esta junta. Les aseguro que lo que el Dr. Chavez hace, lo hace incomparable. El hecho que él será nuestro siguiente presidente me deja satisfecho que nadie, mejor que él, podría desempeñar este puesto. También quiero felicitar y muy bien merecido, a todos los miembros que tan disinteresadamente han dado de su tiempo en la preparación de esta junta.

Nos complace muy de veras gozarnos del anhelado privilegio de volver a visitar a Uds. una vez más en esta hermosa y encantadora ciudad de Guadalajara. Mis compañeros y su servidor nunca olvidaremos la cordial y calurosa acogida, la hospitalidad proverbial mexicana,

las finezas y el compañerismo de que disfrutamos con Uds. durante nuestra visita a esta ciudad dos años pasados. Hemos soñado y abrigado vivos deseos repetidas veces de regresar a Guadalajara para estrecharnos una vez más y reanudar nuestra mutua amistad. Siempre admiro esta ciudad hospitalaria de mil encantos y a sus habitantes que nos dan la mano de bienvenida y nos dicen "mi casa es su casa".

Tengo que publicamente disculparme por no haber dado a esta organización, que en mi opinión, tiene un futuro incomparable, toda la excitación y energía que tan dignamente merece. Mi situación personal al tiempo de mi elección, que tan generosamente me confiaron, era tal que me sentía algo indispuerto a servir por miedo de no poder llevar a cabo los muchos pensamientos que en mi mente ocurrían para el desarrollo de esta organización. No pude, infelizmente, efectuar cosas tal como cartas noticiarias mensualmente a todos los miembros; el desarrollo de un program de acción; visitas al tiempo de las juntas en los gran estados de Sonora, Sinaloa y Jalisco; un estudio del problema serio que se muestra a los médicos residentes mexicanos en nuestros hospitales; una junta con las autoridades de salud publica y el gobernador de Arizona para ofrecer cualquier y toda asistencia de nuestra organización. Estas y muchas otras han sido las ideas de entrada que yo quisiera haber afectuado. Estas ideas apenas rasguñan el superficie y unicamente les ofresco que estas así como otras actividades pueden considerarse como un desarrollo gradual de nuestro programa de acción. Mi embarazo de no haber sido un buen presidente es profundo y unicamente les prometo que en los años futuros de esta organización trataré de corregir la inactividad que caracterizó mi presidencia.

La historia nos muestra que los Estados Unidos tiene un profundo y común interés con México. Este sentido de mutuo interés data desde los tiempos del Monroe Doctrine y ha dado principio a muchas actividades internacionales. En los años de 1930 (mil novecientos treinta) cuando se estableció el "Curso de Buenos Vecinos", los Estados Unidos mostraron un nacimiento de actividades. Yo creo con todo mi conocimiento que otra vez vemos en el presente un histórico era en el desarrollo de las relaciones internacionales entre los dos países que sin duda producirán notables ganancias. El lugar de la medicina en este variable y revelante concepto de relaciones internacionales sin duda tiene que ser prominente. El mérito de los médicos en nuestros dos países, en mi opinión, es tal que debemos ser caudillos en nuestros pueblos. Y como caudillos en nuestros pueblos manifestaremos nuestro deber en comités, etc., que traten con el servicio público. Por medio de esta sociedad y por medio de la inteligencia de sus miembros, espero que el futuro muestre de aquí en adelante unidad en nuestros dos países.

Con la venida de la facilidad y la transportación rápida el mundo se ha encogido. Esto nos facilita recíprocos de gente con sus ideas y sus problemas. Nuestra organización tiene singular oportunidad de caminar adelante al nuevo horizonte internacional que se muestra en todo el mundo.

Por mi parte, yo veo que México es un magnífico país que contiene riquezas de ciencia y quiero aprovechar de la amistad que tan sinceramente me han mostrado por tantos años. Cuando las riquezas de este país, en cuanto a su cultura, amistad y interés, aumenten y sean comprendidas por los médicos Americanos, se puede esperar muchedumbre de visitantes que al principio vendrán por diversión pero llegarán a realizar las potentes posibilidades de aprender en México. Estos ganarán gran provecho.

Nuestra organización tiene un valor básico. Nos muestra el almacén o sea la manera con que podremos dirigir relaciones mutuales y tendremos la oportunidad de reconciliar nuestros esfuerzos a un fin común. No se de otra organización que mejor que ésta tenga la oportunidad de avanzar la estimación de unidad entre nuestros dos países. Esta es una de las primeras declaraciones de nuestra constitución.

Esta sociedad se forma de individuos concienzudos, inteligentes y devotos a su deber, que únicamente necesitan problemas específicos que resolver para efectuar sus esfuerzos dedicados.

Estamos en vísperas de terminar este año y principiar otro en la administración de nuestra sociedad. No obstante el pasado, el presente y el futuro no son años aislados en esta organización, y nuestra historia debe ser una crónica no interrumpida. Debemos aumentar las herencias de las administraciones pasadas. Debemos servir al público con más conocimiento, experiencia y habilidad. Es a la dedicación de estas ideas que nuestra sociedad debe ser fundada, y por medio de mutua armonía y cooperación entre los doctores de nuestros dos grandes países podemos con el tiempo formar una organización que cumpla con los objetos y proporciones a cuales nos hemos dedicado.

Mañana nace de hoy así como hoy nació de ayer. El modelo hasico por su puesto permanece lo mismo, pero los particulares naturalmente se cambian en conformación con las tareas que nos confrontan cada año. El programa de esta organización debe confrontar estas tareas con expeditos, trabajando en unidad y olvidando toda falta de interesados y malsana personalidad. Esta organización tiene que considerar que nació de conocimiento mutuo y necesidad, y debemos de desarrollar entradas cooperativas a los problemas que sin duda nos esperan.

Un núcleo como el nuestro puede dar fruto y mantener sus ideas solamente por medio de atenta cooperación entre todos los miembros. Lo que yo espero es que podamos por respecto y admiración mutua, resolver problemas si únicamente tomáramos un solo rumbo.

Me refiero especialmente a la necesidad, en mi opinión, de formar un programa exacto que mantenga a nuestra sociedad unidamente trabajando y que no permita un período de acción caída. Siento en mí que esta sociedad puede lograr éxito y crecer solamente si tenemos contactos unos con otros y si tenemos objetivos a los cuales médicos de ambos países puedan ofrecer sus esfuerzos. Una sociedad no puede mantenerse con solo una junta por año.

Desarrollemos pues, actividad que se pueda llamar un Programa de Acción. Esto puede ser

asuntos grandes o pequeños que nos afrentan como médicos y ciudadanos de la Republica de Mexico o de los Estados Unidos. Muchos de nuestros problemas nos afrentan como grupos individuos de médicos. Sin embargo, otros se pueden resolver mejor con la cooperación mutua entre los médicos de ambos países. Pero para alcanzar tenemos que tener motivo. En esta programa podemos considerar proyectos que satisfasen necesidades locales, o proyectos de carácter internacional. Pero a mi parecer, debemos de concentrar en un minimo numero de asuntos practicos y no disipar importante energia en un multitud de proyectos.

Si nuestra organización va a comendar el respecto nacional y un proposito merito, tenemos que alcanzar prominencia local, nacional y aún internacional. Esto llegará a cabo solo con acción ya sea por nuestros componetes nacionales o juntos como un grupo internacional. Tal vez estas palabras sean algo confusas. Pero yo no puedo mas que sentir que nuestro desarrollo será decididamente limitado y nuestra utilidad abreviada si no nos mostramos prominentemente por medio de hechos.

Quiero advertir que reconozcamos el hecho que nuestros buenos amigos de Mexico serán los caudillos estimulantes de esta organización. Hasta que llegue el día que tengamos bastante prestigio y estimación en los Estados Unidos nuestra sociedad será de necesidad colocada por la mayor parte en el sud oeste. Uno de los grandes problemas que afrentan al médico en los Estado Unidos es la grande diversificación de esfuerzo a causa de tantas sociedades. Mexico presenta, a mi parecer, particularmente cuando se considera de los buenos médicos de Jalisco, Sinaloa, y Sonora, una oportunidad de desarrollar una organización sin par. Es un hecho positivo, que esta organización puede, debe, y desarrollará como el grupo médico principal, sino el primero de todo la Republica de Mexico.

Con el prestigio va al aceptación de la opinión. Influir al publico para que nuestras inspiraciones sean realizadas y tomen efecto en los problemas nuestro opinión tiene que estimar alta consideración. Con este fin en mente deseo proponer como propuse años pasados que en vez de juntas alternativas entre los dos países, tuvieramos a lo menos dos or posible tres juntas en Mexico en successivos años y luego volver a los Estados Unidos por un año. Tambien quiero decir que en mi opinión debe de estar en la fianza y dirección del Presidente-Electo. Les aseguro que el éxito de esta junta y de su espléndido carácter se debe enteramente al Dr. Chavez nuestro estimado Presidente-Electo y a sus incansables y incomparables comités. Yo tomo ningún credito. Me parece que las juntas deben establecerse, si posible, de tal manera que el Presidente-Electo cuando tome su oficina la haría con una junta que ha sido formada bajo su dirección.

Los pensamientos que hoy les he presentado a Uds. son mios, y han nacido de diligente consideración al desarrollo de nuestra sociedad. Que merece un lugar y satisface una necesidad, no tengo duda. El modo que se debe usar para ponerla en su propia posición de valor requiere, estoy seguro, mucho mas estudio y deliberación. De una cosa estoy convencido, y esto con todo mi corazon, — tiene que continuar creciendo y tomar su lugar en cada uno de nuestros países como una viguerosa y principal sociedad compuesta de médicos dedicados a los fines y ideales tan bien expresados en nuestra constitución. Mas maravillosa oportunidad jamás ha existido donde los hombres juntados en la union de la medicina pueden hacer tanto el uno para el otro y para sus respectivos gran países.

He dicho

Muchas gracias

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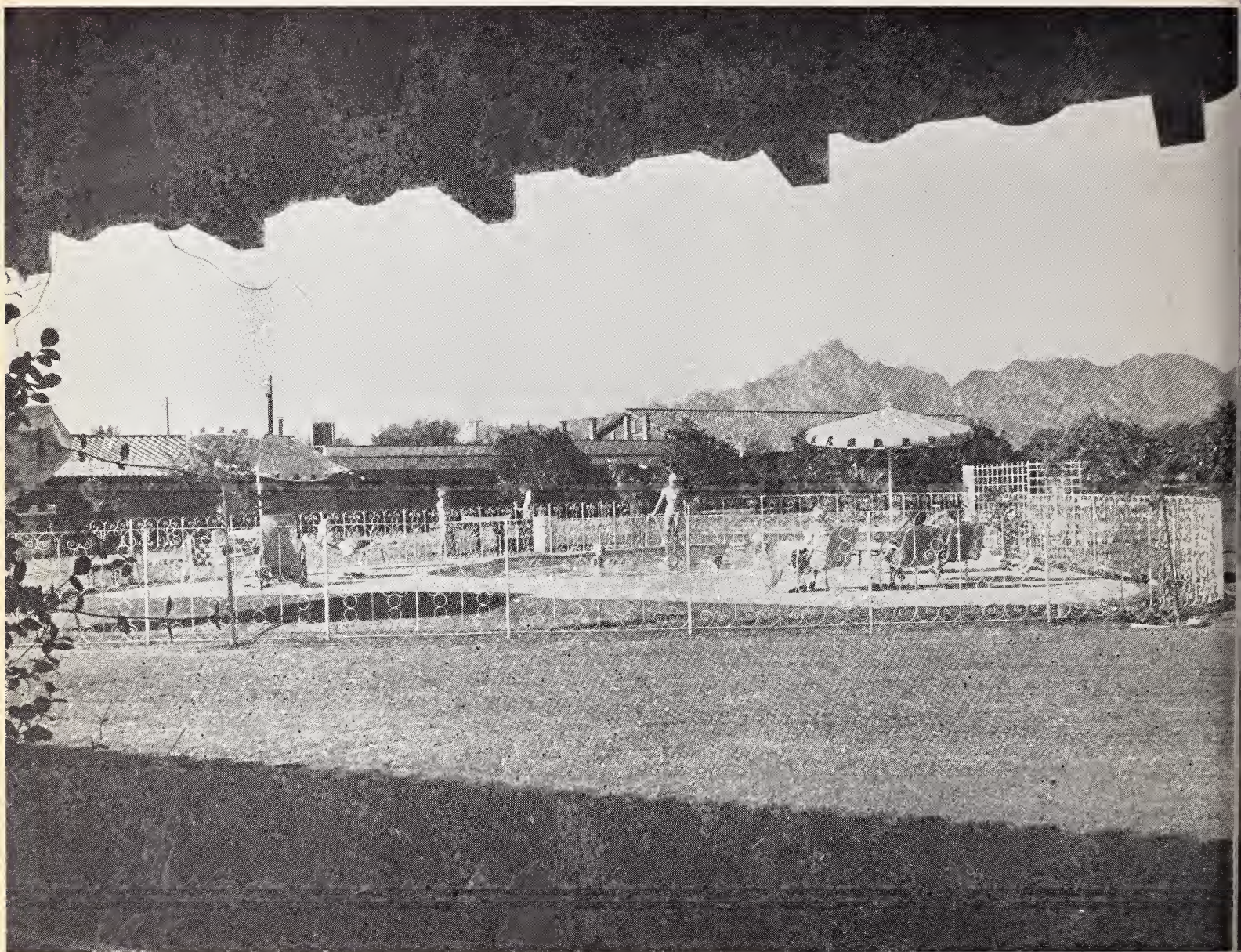


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The President's Page

The Physician and the Two Cultures

Lindsay E. Beaton, M.D.



Lindsay E. Beaton, M.D.

energies are strained by the practice of his profession and by the effort to keep up to date scientifically. It is a nice piece of work just to anticipate what will be reported in *Time* or the *Reader's Digest* before the patient bursts in with those authorities clutched in eager palm. Nor is it enough that the physician be a trained and artful healer; his national leaders also commit him to the public forum, first carefully picking the right political coloration for him. He is urged on all sides and by all hands to give at least his weekends and

In this, medicine's busiest century, the physician may find himself additionally called to an unexpected non-professional mission, to reconcile a crucial cultural conflict. The harried doctor may be excused for impulses to mayhem at the thought that some dreamer has conjured up another social assignment for him. His

evenings to civic causes, to be a part-time educator of medical apprentices and the candidates for the paramedical health vocations, and to be at the beck of the courts. He is tempted by siren voices to spend more time acculturating himself to a new outlook with the "great books", and at the same time *Medical Economics* hammers him with the necessity of expertise in the security markets, office management, tax shelters, and second mortgages. Now someone has whistled up a new and indeterminate job for him. He cannot be blamed for asking in exasperation if he cannot be left alone to care for the sick.

Despite great feeling for the justice of this latter viewpoint, it must yet be acknowledged that the physician has always been the exemplar of the whole man. The day he confines his interests to the bedside, to the laboratory, or to the operating room, he becomes only a superlatively skilled technician and less than the force he should be in the lives of his patients and in the larger world. His role cannot shrink; it must expand; and there may now be special lines first to be spoken. In one of his editorials in the magazine *M.D.* Félix Martí-Ibáñez pointed out the paradox of the physician, the intellectual man forced by the exigencies of his calling to become the man of action. By definition he is the prac-

itioner, the practical one, in whose hands lie the most important of his fellows' material concerns. Yet his whole profession is rooted in theory, and the good clinician always relies ultimately on the formulations of medical science. This dichotomy is the clue to and promise of the guidance he may give in uniting science and art, the pragmatic and the abstract, in an intellectually sun-drenched age. Hans Zinsser once wrote, "Medical training has for certain types of people a ripening influence that no other field of education possesses. Aside from the habits of hard work that it demands, it embraces a broad survey of the biological field, enforces a considered correlation of the fundamental sciences, and, on the human side, brings the thoughtful student face to face with the emotional struggles, the misery, the courage and cowardice, of his fellow creatures — to say nothing of the familiarity it gives him with sociological conditions, vice, crime, and poverty. There is in it a balanced education of the mind and spirit, which, in those strong enough to take it, hardens the intellect and deepens the sympathy for human suffering and misfortune."

The stimulus for this homily came from Sir Charles P. Snow, who first outlined the concept that animated it in an article in the *New Statesman* in 1956 and brought his thesis to wider attention in the Rede Lecture given at Cambridge in 1959, subsequently published as "The Two Cultures and the Scientific Revolution". This work is being recognized as one of the signal insights of the century. Snow sees "Two polar groups: at one pole we have the literary intellectuals, who incidentally while no one was looking took to referring to themselves as 'intellectuals' as though there were no others. Literary intellectuals at one pole — at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension — sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding. They have a curious distorted image of each other. Their attitudes are so different that, even on the level of emotion, they can't find much common ground." Snow himself concedes that there may be more than the two cultures. He seems to think that a third point of view might be represented by the sociologists, social psychologists, and cultural anthropologists. Others might reasonably make a

case for a third culture, or a fourth, in the industrial-managerial sector of our civilization. No matter; the crucial cleavage is clear. Snow is convinced that the scientists have "the future in their bones" but at the same time acknowledges that, "It is the traditional culture, to an extent remarkably little diminished by the emergence of the scientific one, which manages the western world." He notes the fact that non-scientists have little conception of the modern theoretical edifice of the physical world and sadly remarks that the conceptual separation between the scientists and the literary intellectuals is widening. In his memorable language, he says, "Thirty years ago the cultures had long since ceased to speak of each other: but at least they managed a kind of frozen smile across the gulf. Now the politeness has gone, and they just make faces."

There must be a repair of this social divorce; there must be a bridge between the two cultures. As Warren Weaver said, in introducing Sir Charles, at the 1960 Annual Meeting of the American Association for the Advancement of Science, "We must rejoin the pieces of our fractured culture, must restore the unity of the world of the mind." It is an unaccustomed expectation of the particular and perhaps unique position in society of the physician, who certainly does not usually regard himself as an intellectual at all, that is here advanced as a possible link in this reunion. Historically the doctor has in himself coupled the two cultures. He has been at once the contemplative thinker of the laboratory and the consummately skilled artisan of the operating table, at once the stringent theorist and the intuitive and artistic empiricist. His success depends equally on acquaintance with abstruse knowledge and on perception of the personal needs of the sick. The physician, the healer, may show the way to healing a grievous social wound, because he has closed its individual counterpart in himself.

First of all, the doctor's way embodies both art and knowledge because it daily quickens his own sense of what can only be called the beauty of science. In the Rede Lecture, Snow referred to the scientific picture of the natural universe as "in its intellectual depth, complexity, and articulation, the most beautiful and wonderful collective work of the mind of man." And in his address last year before the AAAS he mentioned

the "esthetic joy" of working in science, "exactly the same as the satisfaction one gets from writing a poem or a novel, or composing a piece of music." Graham Greene once said that G. H. Hardy's book, "A Mathematician's Apology," was the finest description of artistic experience ever written. This exhilaration is what the scientist feels when he speaks of the "elegance" of his experiment. This is the exaltation that Edna St. Vincent Millay wrote of:

"Euclid alone has looked on Beauty bare.
Let all who prate of beauty hold their peace,
And lay them prone upon the earth and cease
To ponder on themselves, the while they stare
At nothing, intricately drawn nowhere
In shapes of shifting lineage; . . ."

Even the most respected voices of literature have on occasion recognized the esthetic magnificence of the scientific vision. Gilbert Murray, the greatest of modern classicists, in his presidential address to the Classical Association, given interestingly enough in 1918, the year after Osler had been president, an address later printed under the title of "Religio Grammatici," said of the scientific tradition, "It gives man an escape from the world about him — an escape from the noisy present into a region of facts which are as they are and not as foolish human beings want them to be; an escape from the commonness of daily happenings into the remote world of high and severely trained imagination; an escape from mortality in the service of a growing and durable purpose, the progressive discovery of truth." The physician, privileged with every patient to conduct an experiment in nature, often with gratifying outcome, adds the observation of the beauty of nature's workings to the reward of assisting a fellow human being in distress or danger, to make possible moments of the most exquisite personal joy.

The second reason for the doctor's ability to combine the science and the culture of his day has been that he has been the accepted intimate of the artist and the scholar. He has in the past been considered a learned man himself, and he has naturally become the valued friend of philosophers and men of letters. In the America of the last generation, when H. L. Mencken wanted to spend an evening with the music of his beloved Brahms and a bottle of Schloss Johannisberger, it was the good medicos of the Johns Hopkins

that he sought as companions. May it always be so.

There is a rich vein of literary creativeness in medical men. Among the many famous physician writers have been Anton Chekhov, John Keats, Friedrich von Schiller, and the delightful John Brown of Edinburgh, whose charming tales are unfortunately out of reading fashion. One could cite many others: Thomas Linacre, one of the leading humanist figures of the English Renaissance; or the Swiss, Albrecht von Haller, who was poet and physiologist and botanist and, according to the medical historian Garrison "the greatest systematist after Galen." In our country, too, some men have been both authors and practitioners, as were Oliver Wendell Holmes the elder, and S. Weir Mitchell. Perhaps the most illustrious of them all was that ribald genius, Francois Rabelais. As William Bickers has pointed out in a recent article in the J.A.M.A., he was to the literature of France what Shakespeare was to England, Dante to Italy, and Cervantes to Spain. Yet all of his life Rabelais was a busy clinician, a popular lecturer in anatomy, retained as physician by some of the great men of his day. His memorial statue at Chinon shows him, not in cap and bells, but in his doctor's biretta and his academic robe.

One could read endlessly from the long roster of physicians who have been powerful in determining the intellectual substance of their times, from Paracelsus to Albert Schweitzer. Some of the names are surprising, for one does not think of these men, so eminent in other capacities, as physicians. Such were Copernicus, Maimonides, the musician (and chemist and count) Borodin, and, in America, Benjamin Rush. Galen was a prominent social critic as well as a doctor. In all these men medical education and indoctrination probably had much to do with their leadership in other fields. The association of medical science and philosophical aptitude has been too frequent to be disregarded. Leonardo da Vinci and Goethe were not doctors, but both had medical interests. Descartes was not a physician, but he was trained at Amsterdam in anatomy and physiology, and he was able in the fullness of his genius to forecast the reciprocal innervation of muscle, the necessity of inhibition in the performance of the motor act, and the nature of reflex response.

In our own day the venerable association of the doctor with creative writing continues. One of the country's foremost poets, Carlos Williams, is a practicing pediatrician. And the late Merrill Moore, who probably composed more sonnets than any man who has ever lived, was an active and distinguished psychiatrist. Sherrington, Osler, Cushing, and John Fulton were not inconsiderable literary figures. And then there are the lesser contributors, not to be underestimated, such novelists as Deeping, Cronin, and Frank Slaughter, doctors all, or a poet like Oliver St. John Gogarty, the original of Joyce's Buck Mulligan.

There are finally physicians who put their mark on the thought of the day, not through their accomplishments in literature, or philosophy, or art, but through the seminal force of their own medical or scientific ideas acting in a wider realm or on events. Perhaps the discovery of this continent can be credited indirectly to a physician, Paolo del Pozzi Toscanelli, whose geographical studies pointed Columbus across the Atlantic. Particularly have some men who have been concerned with psychological medicine molded the basic thinking of the intellectual community. Geronimo Cardano, the father of "modern" psychiatry, was such an influence, as was Johannes Weyer, who laid the rational foundation for the abolition of witch-hunting. In more recent times John Locke, Pavlov, and most importantly Freud are physicians who have changed the patterns of opinion of an age. Freud must be regarded as the equal of Newton or Darwin in causing an intellectual revolution that has changed intelligent thought irrevocably and for all time.


The doctor today pictures himself as more of a scientist-entrepreneur than an intellectual, as that term has latterly been applied. By his undergraduate and medical education he is oriented toward physical and biological science, and he receives as well an impetus toward experimentation. It has been estimated that 50 per cent of the students in modern medical schools are involved to some extent in research. Properly the investigative attitude thus fostered is brought forward into the years of clinical practice, and one of the pleasures of the doctor's daily round is the opportunity for the observation of the experiment in nature that every patient provides.

No one would wish ever to reduce the physician's interest in the sick or his research inclinations. One may ask, however, if there has been an attendant, and unnecessary reduction in his artistic and other creative impulses. This is hard to answer. There is evidence to the contrary — the art shows that grace A.M.A. and State Association meetings, the symphony orchestras and string quartets manned by physicians. But more deeply meaningful are the strong opposite pressures on the doctor to adopt the aims and ethic of business, to form an allegiance with the commercial community, particularly with its most conservative sector. Medicine has already been pinned to a right-wing political position, so that the A.M.A. inevitably finds itself on every issue in league with the National Association of Manufacturers, the U.S. Chamber of Commerce, and the National Grange. The doctor's most engrossing and ancient identifications lie elsewhere, with the goodly company of scholars, poets, and artists, with whom he has traditionally been allied, with whom he has traditionally spent his leisure hours, whose concerns he has so often made his own.

One who truly loves his profession hates to see physicians become nothing more than the business men of biological science, the politicians of medical care, the technicians of the sickroom. Doctors ideally are at once practical and intellectual, tough-minded and sensitive, obedient to the mystery of their art and the lofty exactions of their science. The alchemy of the discipline turns both art and science into action in behalf of the suffering. It may also transmute them into a specimen solution for the divisive intellectual dualism of the age.

The physician may be called, in this bewildered 20th century, to return to his historical place and become again the bridge between art and science, and between the life of intellect and the life of practical service. He has long shown how in one man this synthesis can be fulfilled. Perhaps now he can illustrate a necessary reintegration for society. Using the therapeutic principle of example he may show the way to others who have intrinsically an equal capacity for the same conciliation. Thus will he prove again that he is the whole man, who not only cares for his sick or injured brother but would also seek to bind the wounds of the society in which he lives.

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He suggested combining a proven spermicidal agent with an aerosol foam as a basic carrier. The resulting product, Emko Vaginal Foam, proved simple to use, free of greasiness, and economical.

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MARGARET SANGER RESEARCH BUREAU/INTERIM REPORT

In the Contraception Service of the Margaret Sanger Research Bureau, through October 31, 1960, Emko had been used from one to 22 months by 362 patients, with a total of 12 unplanned pregnancies. Seven of the pregnant patients admitted irregularity in the use of Emko.

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A. J. SOBRERO, M.D. *Research Director*

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During the many years of its existence, the hearing aid industry has, quite frankly, just grown. It has been essentially more of a business than a profession. We of the PROFESSIONAL HEARING AID CLINIC feel that it is time that a general statement of policy be made by a hearing device distributor in keeping with ethical standards that are such that a doctor may recommend its services with confidence. For this reason, the following policy has been developed by the PROFESSIONAL HEARING AID CLINIC:

A STATEMENT OF POLICY TO THE MEDICAL PROFESSION:

- 1** This company will cooperate with the medical profession. A report on every instrument sold will be evaluated by a doctor.
- 2** All hearing instruments sold to patients referred by doctors will carry an unconditional money-back guarantee of satisfaction.
- 3** In the event of a sale to a referred patient, an audiometric report will be sent to the referring doctor for his evaluation of the recommended fitting.
- 4** A copy of the audiometric report will be furnished to the referring doctor for his files.
- 5** An honest and realistic approach will be taken in the sale and fitting of each hearing instrument. A device will be recommended only in cases where there is definite need. Our guarantee is an assurance to the recommending doctors that this policy will be followed.
- 6** The hearing instrument recommended must suit the patient's individual requirements, including the definite policy of keeping the cost within the patient's financial requirements.
- 7** The doctor and the patient are to be assured of competent examination, fitting, service, and training in the use of the instrument.
- 8** In the event of any question arising from the sale of an instrument, the referring doctor's advice will be our guide.

Editorials

The Use And Abuse Of Cosmetics

As the sale of cosmetics increases annually, the extravagant claims by the makers of these preparations increase also. Consequently, a report on these products relevant to advertising claims is timely. Because of high-pressure advertising methods, the public does not know what can be honestly expected from modern cosmetics; that is, whether they are "miraculous" or

just beauty aids. Since all cosmetics are certainly not harmless authoritative information from practicing physicians dealing with cosmetic problems should be given at this time.

Among the cosmetic preparations that have been misrepresented in the past are hair dyes and color restorers, eyelash and eyebrow dyes, hair growers and restorers, dandruff cures, hair

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Exclusive Publication — Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
7. Reprints will be supplied to the author at printing cost.

removers, deodorants, lipsticks, cleansing creams, face lotions, hand lotions, vitamin and hormone creams, freckle removers and skin bleaches. This was ably brought to the attention of the public by Doctor Austin Smith in his article "Cosmetic Facts and Fancies" which was in Today's Health Magazine and has been reprinted from time to time. Although most harmful preparations have been eliminated from the market, the incidence of dermatological and scalp problems is definitely on the increase due to the widespread use of cosmetics highlighted by the current popularity of hair dyes, bleaches and hair sprays.

The most troublesome problem today, as in the past, is the misleading and ambiguous terminology used in advertising. For example, to speak of a cosmetic as a hair color restorer is considered false under the Federal Food, Drug and Cosmetic Act, since once hair has turned grey there is no true hair color restorer; and as yet, there is no true hair grower. As to the flood of vitamin and hormone "rejuvenating" cosmetics — Doctor Howard T. Behrman, in his report on "Hormone Creams and the Facial Skin," has shown that there is no appreciable difference observed in a skin treated with hormone cream, the identical base without the hormone or a good commercial night cream.

The increasing number of women with alopecia seen in the past few years by dermatologists is appalling. It is definitely on the increase due principally to the demands on all women to keep fashionable. Frequent premanent waves and the use of strongly alkaline shampoos are two outstanding causes. The latter injures hair resulting in dryness and irritation of the scalp with follicular plugging. This, coupled with the too-frequent use of hair dyes and hair rinses, renders the hair lifeless and brittle. Although the "pony tail" hair style is not as popular as it was a year or so ago, there still is some use of longer hair fashions, which are not without danger. Certain coiffures, in particular the "pony tail", can cause alopecia on the sides of the scalp due to excessive tension on the hair shaft. Also the mechanical breaking of hair following the use of nylon brushes and metal curlers is a contributing factor. Occasionally, distressing alopecia is observed after a faulty cold-wave.

Generally speaking, most cosmetic preparations that are on the market today are satisfactory and safe. However, the dangers associated

with the excessive use of hair dyes, bleaches and creams that are medicated — and therefore might sensitize — cannot be minimized. Many substances contained in some cosmetics are known to be frequent sensitizers.

On the whole, cosmetics should just be cosmetics; and estrogens, antibiotics, and other medicaments should be prescribed only when indicated, and *only by those who are competent to administer them*. Cosmetics are essentially beauty aids, although they are often useful in alleviating such conditions as a skin that is dry or chapped from exposure or improper cleansing, and to provide protection from excessive exposure to the sun and inclement weather. They cannot be expected to effect phenomenal physical changes when damage to the skin is due to dissipation, age, excessive exposure or disease. As Doctor Austin Smith so ably says "If the population learns what to expect from cosmetics and demands only the truth, the promoters of these products will offer the best possible products with only truthful advertising. Until that time purchasers will have to continue questioning considerable advertising nonsense."

Kenneth C. Baker, M.D.

TRAUMA AND ITS AFTERMATH

A simple trauma may be followed by a complicated disturbance or by a chain of complications. A simple antecedent must logically have a proportionately simple consequence. (A broken arm can hardly "result in" alcoholism or ulcerative colitis.) If there appear to be complicated effects, then one must look for complicated causes.

Of these, the least imponderable is the trauma itself.

The trauma may seem to have been a necessary factor (a trigger) in the disability. It must not be inferred that the trauma is therefore a sufficient "cause" of the disability. All the other antecedents are necessary and causative if the consequences are more severe and widespread and lasting than the trauma would explain.

It is never a matter of one cause and many effects. It is really a question of reciprocal and synchronous relations.

The readiness of the individual to over-react

may be the largest factor — the sufficient reason — in his over-reaction. (If a predisposed individual has an attack of asthma after eating a chocolate, his inherent allergies at some point became more persistently “causative” than the isolated incident of ingesting chocolate.)

About this readiness to over-react, the physician may not have intimate knowledge. But he can assess the relative weight of the traumatic factor, — no matter how involved the case nor how numerous the contributing or complicating factors. He has the description of the accident and injury; he has his clinical and laboratory findings; he has the objective opinions of his consultants. And, most important of all, he has his medical knowledge of trauma and its effects. In a given case he can say that the factor of trauma contributed no more than an estimable percent of the entire and complicated etiology of the disability.

Duration is a significant criterion. Taking into consideration the severity of the injury and any psychologically distressing aspects of the accident, the physician should be able to predict the approximate duration of the effects. His knowledge of trauma qualifies him, be it with foresight or hindsight. Persistence of complaints beyond that reasonable interval, or beginning spread of complaints without structural explanation, should alert the physician. He should promptly require of himself and of the patient to recognize that other “causes” are at work.

Neither should the physician be influenced by the stubborn sincerity of the patient's wish to attribute all of his subsequent difficulties to a simple and single trauma.

Some of the patient's difficulties may prove to be psychoneurotic, — conversion hysteria or hypochondrias, is for example. By autosuggestion he may have convinced himself that he has much more disability than the doctors can demonstrate. On account of this conviction he may fail to return to work of which he is physically capable. He may be impressively sincere and honest in his conviction. But if he is mistaken, it is his responsibility to permit convincing medical evidence to correct his mistake. Unwillingness to relinquish the notion that he is disabled does not alter the fact that he is not.

One might protest that a psychoneurotic is not only unwilling but unable to admit the evidence of his real capability and make use of it.

But the concept of such inability in neurosis is not acceptable. All our learning processes assume the ability of the mind to be persuaded by reasonable evidence. It is ultimately this ability to change one's mind that makes psychotherapy worthwhile. The difficulty of the task, of course, is a measure of the resistance, — the unconscious motives to reject insight and avoid the realistic appraisal of one's condition. If an erroneous conviction (of disability, in this discourse) were beyond the ability to be corrected, it would be an actual delusion. And delusion is beyond the symptomatology and scope of neurosis. Neurosis is rather an unwillingness or diswillingness than a disability.

Let it not be deduced that neurosis can only be overcome by psychotherapy or that all neurotic reactions warrant psychological or psychiatric attention. The greatest percentage of such reactions prove self-correcting, self-limiting. Insights and renewed motivations and wholesome influences are to be found in the patients' minds and in their own life situations and not just in the psychiatrist's office.

Within the context of this essay, our argumentative earlier comments, however, precious, are (please) not to be construed as intrusions into the legal considerations of compensability. We are only pointing out that the attending physician can and must try to isolate and evaluate the traumatic factor in a complicated disability. He does not have to be an expert on all the other reciprocal and synchronous elements in etiology. But he does have to be mindful of their efforts and he has to help his patient to become aware of them.

Everything went wrong today. And, tonight when I got home, my daughter's wearing lipstick threw me into a rage. Was it her fault? Was she the cause? Well, it wouldn't have happened if she hadn't worn lipstick. Ah, this is not healthy reasoning. My peace of mind (freedom from neurotic reactions) surely requires a more honest and realistic re-appraisal of the event.

William B. McGrath, M.D.

FOUNDATION FOR MEDICAL CARE

The success of the San Joaquin County (California) Medical Society's Foundation for Medical Care has been so outstanding that it de-

serves further investigation by this society.

In six years they have gone far beyond the original goal of warding off closed practice plans. It has helped solve problems of grievances, bill collections, emergency calls and general relations with the people of San Joaquin Valley. "It has meant comprehensive medical care within the reach of all."

Dr. Donald C. Harrington, president of the foundation states, "It provides a mechanism for quality control of medical care outside of hospitals, something thus far lacking in American medicine. It gives us a check on the continuing education of doctors by letting us know what procedures and treatment they are using. We're just beginning to get into these areas, actually, but the mechanism is there and we intend to use it. One of the surprising things to many doctors is that the program has actually meant higher fees for most doctors. We need the higher fees to bring in the best-qualified doctors."

This plan undoubtedly does not solve all of the problems of American medicine as its proponents would suggest, but it is taking an initial positive step. This could be a step forward rather than another retreat to another unprepared position. The plan deserves investigation.

Darwin W. Neubauer, M.D.

LETTER TO THE EDITOR

February 14, 1961

Tucson, Arizona

Dear Editor:

The article, "Doctor and Lawyer," by Dr. Lindsay E. Beaton, in *Arizona Medicine* makes official the fact that physicians not only do not understand the lawyer, but that they have a thinly disguised suspicion and fear of them. This feeling is not reciprocated by the legal profession. The "small area of common understanding" of which you speak is created, not by the nature of the lawyer, but by the nature of physicians, who, as I hope to develop in this letter, have been inculcated with certain ideas, and have suffered certain deficiencies in training, which cause this unilateral misunderstanding.

In the first place, it is hardly accurate to treat the two professions as being so similar that there is a comparison between them.

The American Bar is an amorphous group, compared with the American Medical Association. Possibly 40 or 50 per cent of the lawyers in the United States belong to the American Bar Association, and while nearly every vicinity has its state or local association, in only a few states is there any requirement of membership.

Legal training does little to furnish discipline or a sense of solidarity. Despite the layman's belief to the contrary, polemics, dialectics and logic are rarely a part of the law curriculum, which is not much more complicated than the ordinary undergraduate course in history or economics. The LL.B. is conferred by many institutions after five years of training, only three of which are law school.

Whatever his pre-law training, after three years of law school the lawyer emerges full blown, legally qualified to practice law and to commence making those mistakes to which he will later refer as experience.

Once embarked in practice, only a very small percentage of lawyers find a niche as specialists. Some become trial men, some handle business affairs, a few go into such specialties as taxation, mineral law or patent law, but the great majority who remain in active practice can only be compared to the country medical practitioner of a century ago, both in training and in the varied inventory of the work at hand.

Outside of a few rather informal organizations, the average lawyer does not participate in or meet with members of a particular specialty which he follows, as do the doctors, and his interests are pretty well limited to solving, to the best of his abilities, the problems which are presented to him day by day by his clients.

Consequently, he would be most surprised to learn that he is considered by eminent authority to be "the architect of government, the deviser of the corporate structure of our economic life, and the arbiter of societal regulation"; he is reluctant to take responsibility for the acts of other lawyers or of the Bar as a whole, and he is not prone to get overexcited at criticism of the Bar because he feels that it doesn't apply to him.

The English Bar, on the other hand, was, when it first became fashionable to criticize lawyers, and still is, a tightly knit organization in which carefully selected members eat, study,

work and practice together. A criticism of a barrister is a criticism of the system, but a criticism of an American lawyer is, perhaps, a criticism of the lack of system which creates him.

The medical profession, on the other hand, is monolithic, being represented by the all-powerful American Medical Association, and buttressed by the various state medical associations which impose discipline and offer continuing technical training. Behind these associations lies a long, rigorous period of training, during which the American medical student, unlike the American law student, attends a medical school, lives in a dormitory with other medical students or in a medical fraternity house, and devotes his studies exclusively to the scientific aspects of his career, completely ignoring, and being excluded from, outside political, economic or sociological forces.

On completion of his medical school work, he becomes an intern or a resident and devotes from one to five more years working and studying in a hospital, still insulated from most outside influences.

From a technical point of view, this system is admirable, but, sociologically, it produces a strange breed of cat. Our doctor emerges upon the world after a period of nine to fourteen years of intensive education, during most of which his only contacts have been with other doctors, nurses and patients. If he has married during this period, he has probably married a nurse (I know of one lady who still refers to her husband as "Doctor").

The physician's associates during these years of young maturity, outside of his fellow doctors, are almost entirely confined to nurses, who are trained to regard him as a minor deity, or to patients and their relatives who are anguished or frightened and in no position to deal with the doctor upon an equal basis.

The entire system of the modern hospital organization is based upon this combination of discipline and awe, which was emphasized to me not long ago when I came upon a woman who was having some sort of a convulsion and took it upon myself to transport and deposit her at the emergency ward of a local hospital. It was the first time I had ever been to a hospital when I was not in pain, in fear, or in anguish, over the illness of a friend or relative; and

when the nurse and intern refused to accept the woman, still vibrating, on the ground that I was not a doctor and could not admit a patient to the hospital, I was able to advise them serenely that the patient was their problem, not mine, whereupon chaos resulted.

In any event, our typical doctor emerges from his practical training after a period during which he has been fully insulated from the other normal people who make up the world he lives in. He has been living on an extremely limited budget for a long period of time, and he now demands, and justly so, ample compensation for his services.

It is at about this point that he first encounters the lawyer. His contemporary who took up law has, by this time, been out in the world of practice for several years, and the dew is off. Our doctor possibly encounters the lawyer in a business transaction wherein he seeks to invest some of his new and hard-won wealth and finds that the young lawyer of his age is sophisticated about such transactions while he, the doctor, for the first time almost since adolescence, is in a foreign field. He is uninformed, and therefore he is suspicious.

More rarely, the doctor's first encounter with the lawyer is in the courtroom. Here the young doctor is in for a shock, and one which may turn him against the legal profession permanently, for during the previous decade, his opinion on any subject has never been publicly questioned. True, older doctors or colleagues may disagree and correct him privately, but the nurses and patients are in no position to do so. Now the doctor has to defend his opinion in a court of law under the gaze of the judge and twelve jurors who are neither nervous, anguished nor frightened.

It is, understandably, a nerve-wracking experience, even though the attorney who is conducting the examination has little learning or skill in the subject as a rule, and is in no real position to dispute the doctor's opinions.

These two spheres, then, are the only areas on which the two professions meet on a professional basis, so that it is not strange that the area of common understanding is small.

By far the great majority of doctors, of course, have never been on the witness stand, and only relatively few of them have dealt professionally with lawyers in a business transaction. They are

most suspicious and fearful of lawyers. Even though their lawyer friends and golfing companions are decent though dull fellows, the doctors' collective image of the lawyer is the sly cuss one sees on television, contrasted with the image of the TV doctor.

This wordy preamble is necessary in order that the doctor may understand his own point of view and in order that his attitude toward the items in your bill of complaint can be explained.

Your first two charges, if that is not too strong a word, deal with the "rising frequency" of malpractice suits and the high verdicts in personal injury cases. These problems are so related that they must be dealt with jointly.

It is true, and a matter of the greatest concern, that jury verdicts have risen to astronomical heights, and as a consequence the amount of litigation has increased tenfold, because people with real or fancied injuries are seeking the pot of gold at the end of the rainbow.

You suggest that this is somehow the fault of the lawyers, although, as you point out later in your article, our system of judge and jury, for the determination of damages, has not changed in many years.

I should like to suggest that high verdicts can be charged almost entirely to the medical profession. Do not lose sight of the fact that in every personal injury case there is medical testimony, and that the amount of the verdict is based entirely upon such testimony, except in the case of amputations and other spectacular injuries. In my personal experience, most of the outrageous verdicts have been the result of medical testimony wherein the doctor deduces from subjective symptoms, impalpable and intangible injuries, which are all the more horrifying because they are invisible to the jury.

A few examples: Fifteen years ago a stiff neck as a result of an automobile accident was worth \$3,000 or \$4,000. At about that time I was startled to learn, while defending a lawsuit, that a plaintiff whom everyone thought had a stiff neck actually was suffering from a cervicobrachial syndrome. This was worth \$15,000.

Ten years ago a plaintiff suffering from sacroiliac or sciatica could expect only a modest award. Now, as the victim of a herniated nucleus

pulposus, he can command a verdict of \$50,000 or more.

I have heard a learned psychiatrist, who shall be nameless, discourse on the stand on the possibilities of traumatic epilepsy resulting to an attractive young girl who had suffered a head injury and admit, only reluctantly, that no symptoms, including an encephalogram, indicated such a prognosis.

A railroad worker who was caught under a moving train but was extricated without injury and who lost about a week's wages, was given \$60,000 on the basis of testimony that he was suffering traumatic neurosis because of the way he identified the shape of ink blots on cards (a fantastic thing which I believe is called the Rorschach test). The medical profession cannot escape this responsibility on the ground that, as you have so alliteratively put it, the doctor is the "patient's passionate partisan."

I have before me now material from two organizations patronized by plaintiffs' lawyers (one of them, "a Bar association of lawyers helping injured persons") which regularly sponsor institutes and conventions at which instruction is given by distinguished physicians in how to extract more money from defendants. Among the subjects to be discussed at such a meeting to be held in the next few months are: dermatology, neurology, neuropathology, neurophysiology, neuropsychiatry, neurological surgery, psychiatry and urology. I emphasize that the physicians who are to participate are perfectly reputable.

The odd thing is that it is almost impossible to secure defense testimony of any value. In twenty-five years of practice, I have been unable to find a single doctor who would look a jury in the eye and testify that the plaintiff was a malingerer, even though, in the safety of his office, he told me that such was his opinion, both before the trial and over cocktails afterwards. Yet a study of "whiplash injuries" published in the American Medical Journal a few years ago, declared that of 100 cases studied, 98 lost all significant symptoms after their cases were settled.

So the defense lawyer is not particularly sympathetic with the doctor's horror of malpractice suits. These are, after all, personal

injury suits too, and if groundless suits are brought and outrageous verdicts rendered, the physician has had a great deal to do with encouraging all types of personal injury litigation.

It should not be forgotten that malpractice suits are also based on medical testimony, and when a reputable doctor is willing to testify that the skill and care exercised by a surgeon does not meet the standard required in the community, a reputable attorney can hardly be blamed for presenting a client's case based on such an opinion.

As you have indicated, there is one class of malpractice case which does not require medical testimony. These are cases in which a surgeon has left a foreign object in the body of a patient, and under the doctrine of *res ipsa loquitur* ("the thing speaks for itself"), the Court is entitled to consider the surgeon's negligence without medical testimony. It is difficult to conceive how it can be argued that such conduct on the part of the surgeon is not negligence, but perhaps no more difficult than it is to argue that it is reprehensible for a lawyer to take such a case.

In your two primary arguments, there is room for debate, but in your next point, you go far into a field in which the doctor can have only the most academic interest and in which the two professions have no common concern. You refer to "pettifogging maneuvers" of attorneys and "clogging delay" because of a failure to "speed the clearance of court calendars."

Semantically, these are not attractive terms. They charge trickiness. The suggestion that lawyers, through trickiness, delay justice is recklessly false. There are many practical reasons why justice should be deliberate.

A physician should be the last to suggest that a plaintiff who has received a traumatic injury should appear in court while the blood is still fresh, so to speak, although the bloody bandages would surely enhance the verdict. A physician knows that a patient's condition, after many types of injury, is not static for many months. In the field of psychiatry years of treatment are sometimes required. So, premature trials would be most unfair to plaintiff and defendant alike. In Pima County, a case can be tried in six or seven months which, in many

cases, is sooner than the parties are ready for trial.

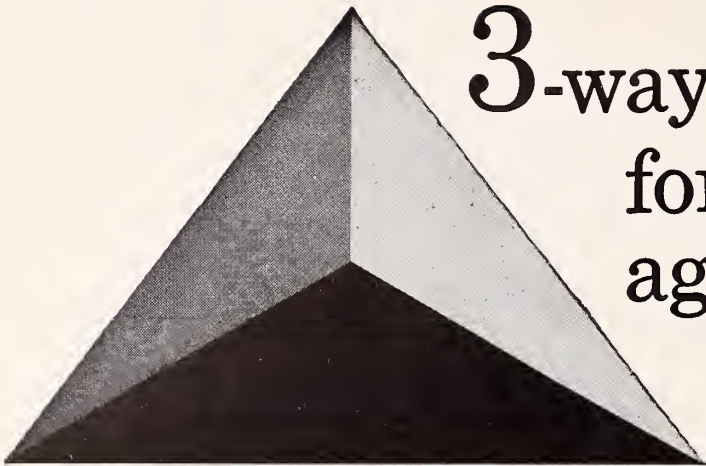
It is true that some college professors, ambitious judges, and theorists take the time to agonize over congested court calendars which do exist in a few places of exploding population, such as Maricopa County, but the experienced trial lawyer is well aware that this problem exists chiefly in the minds of the uninformed, who do not have to deal with the practical side of litigation.

Space does not permit detailed discussion of your other points, but the suggestion that the physician would prefer a single judge rather than a jury seems to fail to consider the proposition that a trial at law is an emotional process and one man, even though learned, is just as susceptible to emotion as a dozen — but there is some hope of checks and balances where a dozen are concerned. True, the jury system is imperfect, but it is probably no more imperfect than the human beings which it judges. The public as a whole, not lawyers alone, would welcome proposal of a better system.

Throughout your letter you return to the proposition that the Bar is responsible for all of our bad statutory law. True, there is a general misconception that most of our legislative bodies are composed chiefly of lawyers. An example of how incorrect this is can be found in the Arizona Legislature, the lower house of which has two lawyers (and two members of the healing arts) out of 80 members. The Bar is even blamed for making sodomy and other interesting hobbies illegal. I am sorry to say that I must confess that the Bar cannot take credit for this moral stand. In fact, adultery was prohibited by the Emperor Augustus in 5 B.C., some little time before the English Common Law.

To sum up, the average lawyer is an admirer of the average physician, particularly his excellent training and his high standards of practice. The fact that this admiration is not reciprocated may be attributed to the physicians' lack of understanding; and this lack will probably never be remedied. As Sam Johnson said, "I have found you an argument; I am not obliged to find you an understanding."

Sincerely,
H. C. Warnock



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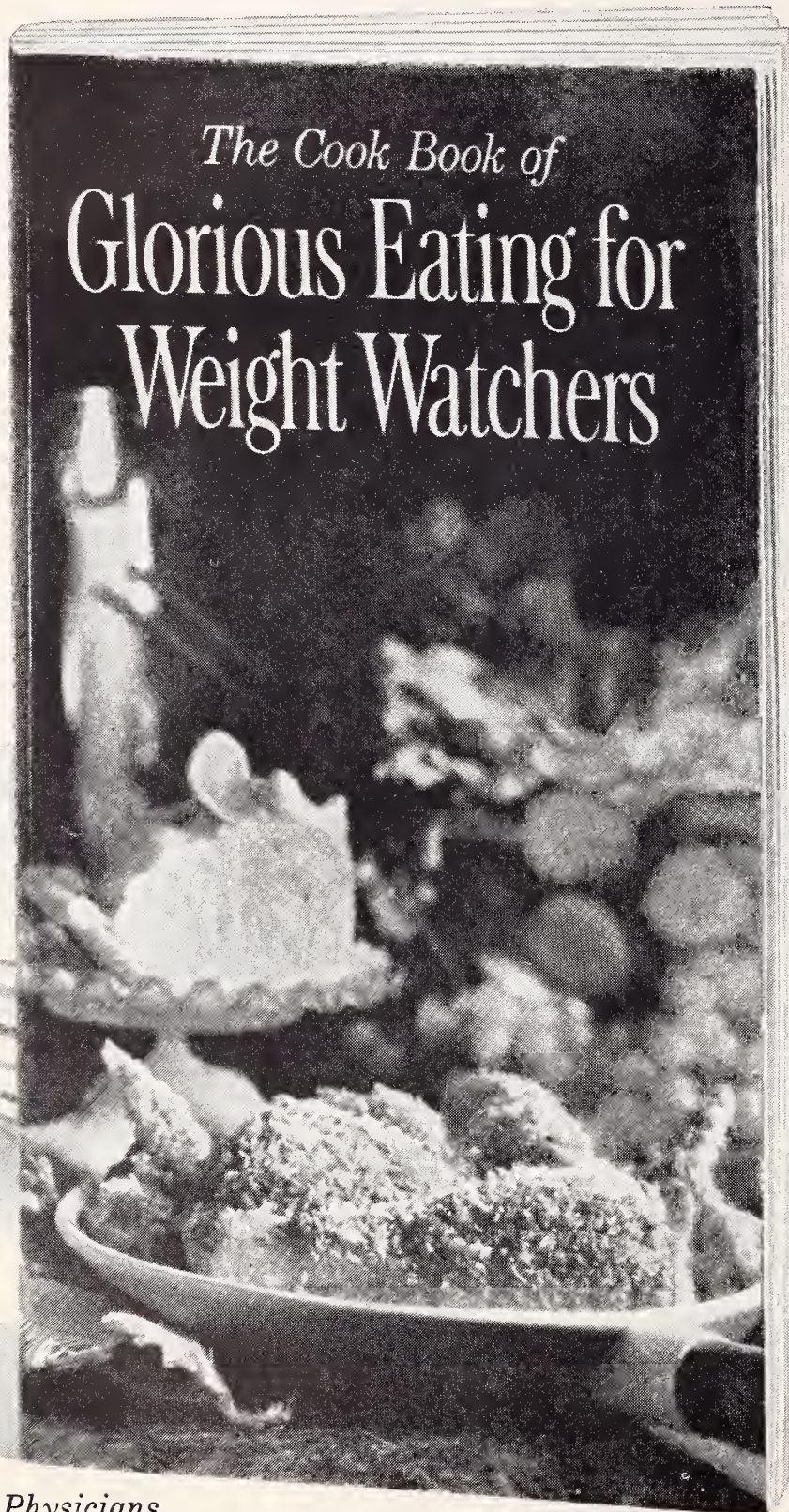
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Recipes and Menus with Satiety and Appetite Appeal in Mind

The Cook Book of Glorious Eating for Weight Watchers fills the long-felt need for a weight control plan that is workable for everybody in the family. Realistic regimens are built around good, natural, readily-available foods enhanced by delicious methods of preparation. In place of "fad diets" or tasteless formulas, it provides for truly appetizing meals. It teaches and encourages the development of the healthful eating habits that can prevent overweight, America's #1 Health Problem. This full-color cook book contains 100 pages—248 delicious recipes each with calorie counts. Complete menus are here at 3 calorie levels—1200, 1800, 2600. Calorie levels are related to *best* weights by sex, age, size and extent of activity.

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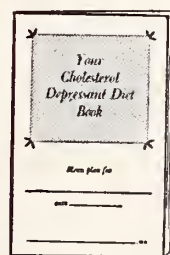
All menus provide the proper amount of protein, carbohydrates, fat and the other essential nutrients. The principles of good nutrition are included to help the homemaker plan her own properly balanced, calorie controlled menus. With simple subtractions or additions to the same basic menu, each family member can be served delicious satisfying menus according to his individual needs.

Not a reducing manual. It should be explained that "The Cook Book of Glorious Eating for Weight Watchers" is a guide to the *prevention of obesity*. Its publication marks the first time

that a food manufacturer like Wesson has taken so important a step to help combat this serious public health problem.

Copies for physicians. "The Cook Book of Glorious Eating for Weight Watchers" is being offered to the general public. If you would like a copy for yourself, together with forms to enable patients to obtain their own copies, please fill in coupon below.

Note: Please do not confuse this booklet with the *Cholesterol Depressant Diet Book*, published by Wesson as an aid to physicians and for professional distribution only. The concept of the *Cholesterol Depressant Diet Book* stems from Wesson's value in cholesterol depressant diets. Where a vegetable (salad) oil is medically recommended for a cholesterol depressant regimen, poly-unsaturated Wesson is unsurpassed by any readily available brand.



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In Memoriam

Mark Henry Wall M.D.

1898-1961

Mark Henry Wall, M.D. passed away at his home, 105 East First Street, Mesa, Arizona, on January 15, 1961.

Doctor Wall was born in Eau Claire, Wisconsin, March 24, 1898; received his doctor of medicine degree from the University of Minnesota Medical School December 16, 1926; interned at University Hospital; granted Arizona certificate No. 1792 January 5, 1946; first became a member of Maricopa County Medical Society, this Association and AMA in 1946; served in the Army of the United States in 1918.

Doctor Wall was Chief of Staff at St. Joseph's Hospital in Superior, Wisconsin; member of the Masonic Lodge and a Scottish Rite Mason in Eau Claire; member of El Zaribah Shrine of Phoenix and the Mesa Shrine Club; he came to Mesa from Superior, Wisconsin in 1945; was member of the Mesa American Legion; organizer and first president of the Arizona Amateur Athletic Association; charter member of the Sun Angel Foundation; member of the Arizona Country Club; he was president of the Douglas County Medical Society in 1934.

Among Dr. Wall's many friends Dr. Oscar Thoeny has this to say about him. "Mark had ideals and a character to uphold them. At the University of Wisconsin he was already asserting his leadership. As an athlete he was captain of the cross-country team and those teams that he led established a record of competitive ex-



Mark Henry Wall, M.D.

cellence that has not been seen since he left. In his fraternity he was the acknowledged statesman and along with his contemporary, Doctor Exley, formed the team named Ma and Pa; they were the two we turned to when we wanted advice and counsel."

Dr. Melvin Kent, a close personal friend and

ofttimes associate through care of patients, describes his Mesa activities. "Dr. Mark Wall began his practice in Mesa in February, 1946. His skill was soon recognized by his fellow practitioners. His kindness, ability, and Christian spirit brought him patients and he soon found himself in the midst of a busy practice.

Mark was a skilled medical man in the true sense of the word, possessing exceptional judgment and ability. Many younger doctors in this area went to him with their problems. He fathered them through their difficulties, giving them sound advice and a helping hand.

His ability had many facets. He was a profound student and read not only the accepted literature in his chosen field, but was widely read in the arts and sciences. Few men in medicine know more about more things than did Mark H. Wall. His curiosity for learning died with him, not before him. His passing will be keenly felt in Southside medicine and surgery. We doubt that any young man in this day of true specialization will be able to successfully encompass such a wide professional area. Indeed, he was one of a dying breed and his passing is a loss to those he served and those who loved him."

Surviving are his wife, Anna S., a professor at Arizona State University; one son, Doctor Mark H., Jr., of Torrance, California; two daughters, Mrs. Katherine Tselentis of Tucson and Mrs. Barbara Friedrich of West Los Angeles; three sisters, Mrs. Frances Keough of Wausau, Wisconsin; Mrs. Lillian Crum of Costa Mesa, California; and Miss Marie Wall of Lacy, Washington; three brothers, James J. of Wausau, Wisconsin; the Rev. Gregory Wall of Lacy, Washington, and Doctor Willard Wall of Minot, North Dakota.

FORMER WISCONSIN PHYSICIAN DIES IN ARIZONA

Armond J. Ruppenthal, M.D.

Doctor Armond J. Ruppenthal, 69, passed away January 30, in Phoenix, Arizona where he had lived, and practiced medicine for the past two years. At the time of his death, he maintained an office on East Glendale Avenue, and was on the staff of the John C. Lincoln Hospital.

Born in Cascade, Wisconsin, Dr. Ruppenthal lived as a youth in Brillion. He was educated through his pre-med years at Marquette University, and graduated in 1920 from the University of Illinois College of Medicine. From that time through 1924, Dr. Ruppenthal interned at Milwaukee County Hospital; received his O.B. training at the New York Lying-in hospital; was house physician at St. Johns Hospital in Brooklyn; and he also worked with tuberculous cases at the Sea View Hospital on Staten Island, New York.

In 1925, Dr. Ruppenthal served as physician-in-charge of Sir Wilfred Grenfell's Mission Hospital in Battle Harbor, Labrador.

Dr. Ruppenthal practiced medicine for more than 30 years in Milwaukee where he had an office in the Medical Arts building, 945 N. 12th Street. He also served on the staffs of St. Anthony's and St. Joseph's hospitals in that city.

Among his many affiliations were the Medical Society of Milwaukee County and Maricopa County (Arizona), the Athletic Club of Milwaukee, and the American Legion. His fraternities were Alpha Gamma Phi; Beta Beta Pi; and Tau Nu Epsilon.

Dr. Ruppenthal is survived by his wife, Mara of Phoenix, a brother, Edward Ruppenthal, D.D.S., of Milwaukee, and a host of friends in both cities.

PROJECT HOPE

American medical specialists from all parts of the country have volunteered to serve in Southeast Asia, it was announced by Dr. William B. Walsh, president of Project HOPE.

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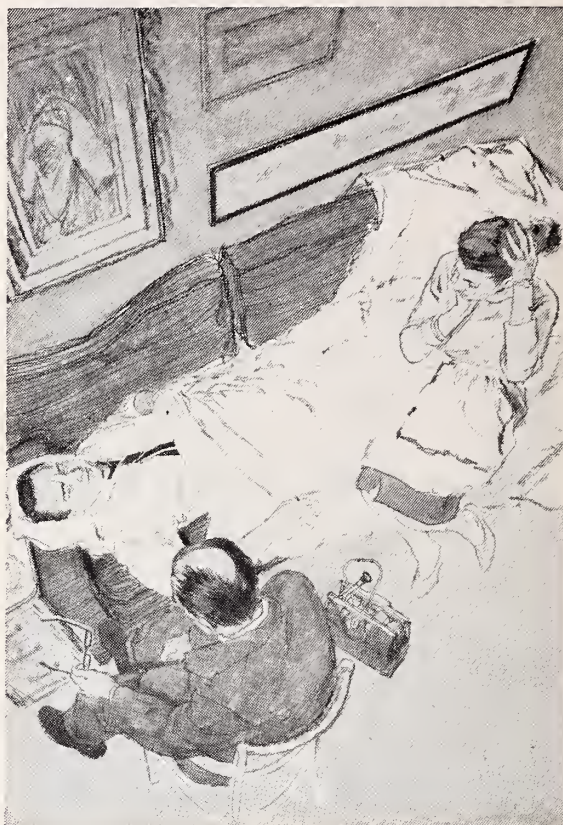


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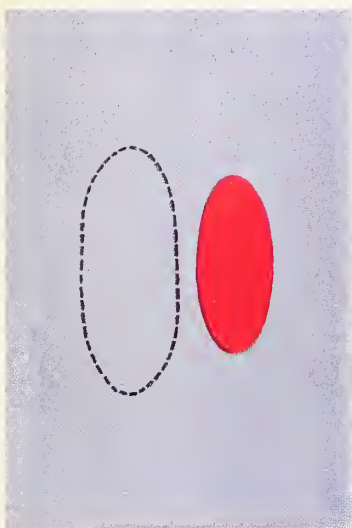
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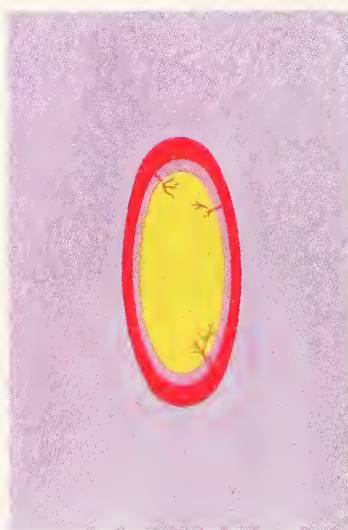
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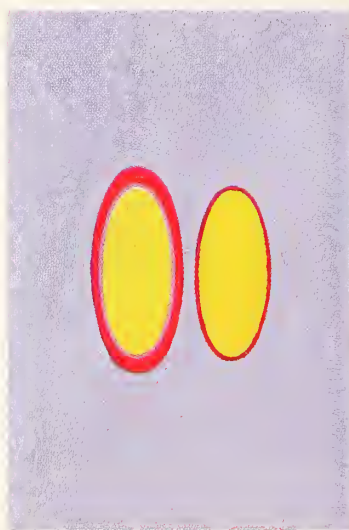
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Topics of Current Medical Interest

The Physician's Accountant

Gary Wade

To preface my talk, I thought you might be interested to hear an accountant distinguish the difference between accounting and bookkeeping. Bookkeeping is the recording of daily business transactions, such as the posting of cash receipts and disbursements to the proper journals and ledgers in the proper manner, in order that you can follow the true financial picture and position of your enterprise.

Accounting is a much broader term. It encompasses all of the aspects of bookkeeping but it more properly analyzes and supervises them. It sets up the system to be used in the bookkeeping process and follows it by means of monthly, quarterly or annual audit. This audit follows step by step the system devised, seeing to it that it is adhered to in all respects.

In former days the accountant, or outside auditor, was often thought of chiefly as a detector of fraud, however, today I believe it can be safely stated that our function is 99 per cent the prevention of fraud and 1 per cent on its detection. It is my belief that you can consider fraud as practically non-existent in your office if you will follow these simple recommendations:

1. A receipt be written for all money received.
2. Receipts be obtained for all petty cash paid out.
3. Petty cash be counted periodically.
4. Deposits be made daily for all money received the previous day.
5. Accountants be allowed to make surprise spot audits.
6. All employees be bonded.
7. Control be maintained on the accounts receivable with a detailed explanation of all accounts charged off.

I realize that each and every one of you feel that your secretary or bookkeeper is a devoted and faithful person, but you are not being fair to her or to yourself if you do not have proper internal controls which minimize temptation.

With our tax structure as it is today, the doctor's accountant should be no further away than the nearest telephone. I am sure that almost all of you have an accountant who prepares your income tax returns, but for those of you who don't, may I suggest that when you leave this convention you make it a must to inquire around — among your fellow practitioners and friends — and secure the services of the best accountant you can find, to work with you on your tax problems. His service won't cost, it will pay. You, as a general practitioner, would not attempt to do the intricate work of a neurosurgeon, but would refer your patient to one for more specialized medical care. With tax problems becoming more complex every day, for your own personal well being, let a man who is in constant contact with these problems prepare your returns and advise you regarding them.

There are many aspects with which your accountant can help you and should always be consulted. The following are just a few:

1. Partnership Agreements

He should work hand in hand with your attorney to see that your agreement incorporates the ideas that you, as a principal, desire. I have seen too many agreements that do not accomplish the purpose intended, and later on hard feelings and possible dissolution result because of poorly prepared agreements from the accounting standpoint.

2. Insurance

Your accountant should be able to help you with the necessary amount of insurance you should carry as far as your equipment, building, automobiles, liability and even malpractice are

concerned. Without the aid of the accountant, the insurance agent may very possibly under or over insure your basic needs.

3. Purchase of Office Equipment, Automobiles, et cetera

Here again your accountant can advise you regarding your office needs as to what type of office equipment is best suited for your office and the office procedures according to the system that has been devised. No two offices are the same, and many of you might get the idea that because Doctor Smith or Doctor Jones has a certain type of equipment or procedure, and it is working satisfactorily for him, then this is for you. In many cases such a misapprehension can prove very costly and result in many hours of extra work and headaches. As far as automobiles are concerned, your accountant can tell you on very short notice whether you should sell your car and take the capital gain or whether you should trade it in and assume the adjusted basis.

4. Collection Problems

If your accountant works with any number of other doctors, doubtless he can assist you with this very important problem. He can supply a sort of yardstick of figures for comparing your collections with those in similar practice. He can also inform you as to whether your accounts receivable are too great and when and how you could possibly reduce them.

5. Expenses and Their Relation to Income

I am certain that each of you is presently confronted with the problem, or has found at one time or another, that your expenses are too great. If such is presently the case, call in your accountant, let him examine and analyze your situation, and I am sure he will be able to find the main root of your problem. From past experience, it is my observation that the expenses of a well run general practitioner's practice will not exceed 40 per cent, and some will run as low as 30 per cent.

6. Tax Deductions

This probably is one of the most important duties of your accountant today, and this is where he really should excel. What can you deduct, and what can't you deduct? One of our biggest problems is trying to secure from you fellows, proper itemized deductions for entertainment and convention expenses. This is one phase of your return that the Internal Revenue

Service is really going over with a fine tooth comb. Entertainment expenses should be clearly documented; in other words you should have dates and names of people entertained, along with cancelled checks or receipts. Also these people named must be ones that you can prove have a direct relationship to the income you earn. If the person is a physician, you must be able to prove that he has, is, or will be referring patients to you. However, one person's name should not appear more than three or four times during the taxable year, or you might find that the revenue agent will classify this as a social obligation and not entertainment. It might also be added, at this point, that entertainment of your partner or partners is not classified as a deductible expense.

An example of retaining entertainment records was brought out in "Medical Economics" some time ago, which referred to a physician who had misfiled his entertainment records. He claimed a deduction for approximately \$750.00, but when the agent requested he produce the written documents, he was unable to do so. In the absence of such evidence, the skeptical agent disallowed the entire deduction and accused the doctor of fraud. This might possibly happen to you if your entertainment expenses are not properly documented by written evidence.

As far as convention expenses are concerned, they follow the same pattern as entertainment expenses. Have your meals charged to your hotel room whenever possible, or charge your meals to one of your credit cards and pay everything by check. Then note on your check stub who you had to dinner, cocktails, or whatever the case may be. If you take your wife, charge off only the portion of the hotel room, meals and transportation that would have been incurred, had you been alone. If you plan a vacation following the convention, you must also be very careful. In most cases they will not allow you to deduct the cost of transportation, but only the hotel room and meals for the length of the convention.

Another factor which might well be brought out at this time is the matter of donations. Let your accountant help and advise you when to give and how to give. For example, he might be able to save you considerable tax dollars by paying off a pledge before the year's end, rather than carrying it on into following taxable years.

He might show you, for example, how a stock purchased at 10, with a present market value of 100, may be deducted as a donation at its present market value without reporting the capital gain of 90. Another thing which is very important with regard to deductions, is to make sure that the charitable institution that you claim, is so recognized by the Internal Revenue Service.

In summation, I would again like to bring out the fact that your accountant should act as a guide or at least be consulted in your financial matters. His guidance will help you run your office more profitably and keep you on a sound basis, as far as your income tax problems are concerned.

I want to thank each one of you for this opportunity to appear here today, and the kindness that you have extended.

U. OF A. — MEDALLIONS OF MERIT

The following doctors in Arizona received special recognition from The University of Arizona during its 75th Anniversary by being awarded Medallions of Merit:

DOCTORS LICENSED IN ARIZONA FOR FORTY YEARS OR MORE

Nicolo V. Alessi, 620 10th St., Douglas, 10-21-19.

Nelson C. Bledsoe, P.O. Box 1990, Tucson, 7-4-04.

Nelson D. Brayton, 32 Keystone Ave., Miami, 7-20-11.

William C. Cain, 642 4th Ave., Yuma, 1-31-19.

Arthur C. Carlson, 341 W. McDowell Rd., Phoenix, 7-16-10.

Meade Clyne, 116 N. Tucson Blvd., Tucson, 7-16-10.

Morris D. Cohen, 1534 E. Speedway, Tucson, 9-7-05.

Cyril M. Cron, 1307-A East Wilson, Glendale, Calif., 10-18-09.

Frederick T. Fahlen, 4750 E. Cholla Lane, Phoenix, 4-30-18.

Harry J. Felch, 703 Professional Bldg., Phoenix, 8-4-16.

Martin G. Fronske, 401 West Aspen, Flagstaff, 4-28-14.

Harry L. Goss, 3043 N. 2nd St., Phoenix, 2-2-20.

Edward J. Gotthelf, 4 East Congress St., Tucson, 10-23-15.

Joseph M. Greer, 26 East Coronado Rd., Phoenix, 7-23-14.

Emile C. Houle, 5002 E. Mitchell Dr., Phoenix, 11-8-07.

Hilary D. Ketcherside, 423 Gretna Green Way, Los Angeles, 10-29-19.

Roy R. Knotts, 1340 3rd St., Yuma, 2-8-09.

Robert N. Looney, 134 N. Mt. Vernon, Prescott, -03.

Arthur C. McIntyre, 2617 N. Tangerine Ave., Phoenix, 5-8-15.

James R. Moore, 1602 W. Adams St., Phoenix, 2-2-20.

Earle W. Phillips, 5601 N. Palo Cristi, Phoenix, 11-21-18.

George W. Purcell, Downtown Motel, 383 South Stone, Tucson, 1-20-17.

Harold W. Rice, 110 South Irving, Tucson, 1-18-18.

Van A. Smelker, 310 Valley Bank Bldg., Tucson, 7-20-08.

Lucian M. Tompkins, 201 South Main St., Gilbert, 4-28-19.

Samuel D. Townsend, 309 East Congress, Tucson, 8-1-08.

Otto E. Utzinger, 5610 N. Saguaro Rd., Scottsdale, 10-29-19.

University of Arizona Graduates who have served as President of the Arizona Medical Association

W. R. Manning, 770 N. Country Club, Tucson.

Dermont W. Melick, 1005 Professional Bldg., Phoenix.

Doctors Cited for Special Service

Trevor G. Browne, 315 E. Monte Vista Rd., Phoenix.

W. Paul Holbrook, 4101 East Whittier, Tucson.

A SUMMARY OF PRELIMINARY REPORT AIR POLLUTION SURVEILLANCE STUDY TUCSON, ARIZONA

A short intensive air pollution sampling study made in Tucson, Arizona in January, 1959 indicated that objectionable air pollution can and is coming to Arizona population centers. In order to attempt an evaluation of the problem as well as provide basic data for future studies of a comparative nature, it was decided that a jointly sponsored project be proposed to extend over a 10-month period beginning in September 1959. The United States Public Health Service and the Arizona State Health Department agreed to cooperate by providing technical consultation, equipment and personnel assistance. The study has been conducted in the Engineering Experiment Station of the University of Arizona.

The period of sampling extended from September, 1959 through June, 1960. All testing apparatus was set up on the University of Arizona

campus. During the study approximately 6,000 samples of air were taken. The resulting data have been carefully analyzed, and the daily and hourly averages are shown on appropriate graphs.

The chief air pollutants are considered to be:

- (1) Oxides of sulfur, estimated as SO_2
- (2) Oxides of nitrogen, estimated as NO_2
- (3) Solids, as dusts, smoke, condensed fumes, etc.
- (4) Aldehydes, estimated as formaldehyde
- (5) Carbon monoxide
- (6) Organic vapors or hydrocarbons

The major source of these pollutants are from fuel oil combustion, coal burning, automobile engines, diesel engines, waste incineration, and evaporation of gasoline, solvents, paint thinners, cleaning compounds, etc. Gasoline engine exhaust is the chief polluting source.

The results of this 10-month study show that the gaseous pollutant levels cannot be considered as high levels of pollution when compared to a city such as Los Angeles, but it should be pointed out that the population of Los Angeles is about 20 times that of Tucson. As for oxidants in the air, concentrations did not reach alarmingly high levels during the period of study, although a few days showed levels that might cause eye irritation. Results of other tests indicate that Tucson is beginning to experience pollution of its atmosphere, that if continued will cause increasing discomfort.

When a city experiences an increase of population comparable to that found in the Tucson area since 1945 (and which is predicted to continue for the foreseeable future) the waste products resulting from the increased activity limited to a relatively restricted area will continue to cause difficulties. To protect the public from the potential hazard to health and to avoid the economic loss that results from an increasing smog problem, it is essential to set up facilities for the investigation of local conditions that may lead to excessive air pollution. Fortunately, financial assistance to enable these studies at the University of Arizona to be continued for another period has been arranged. Obviously, long-term studies of sources of air pollution and of local meteorological conditions are required to determine the methods necessary to assure clean air for the community.

Hugh H. Smith, M.D., M.P.H.



Arthur C. Stevenson, M.D.

Arthur C. Stevenson, M.D., 3722 East Pasadena, was elected to the board of directors of the National Association of Blue Shield Plans, at the District IX meeting in Albuquerque, New Mexico. He is a former president of the Arizona Blue Shield Plan and is the first board member from this state to be so honored nationally by Blue Shield. Dr. Stevenson is a graduate of the Manitoba Medical College and has been active in medical affairs throughout the state. His term of office began in April, at which time the annual Blue Shield conference was held in Chicago, and will serve for a two year period. As a member of the board of directors of Blue Shield nationally, he will have a strong hand in the determination of national policy matters relating to the prepayment organization and a close association with the American Medical Association.

SALICYLATE POISONING: TREATMENT BY CURARIZATION AND CONTROLLED RESPIRATION

In a recent correspondence to the British Medical Journal, Rees, Stead, and Bush(1) directed attention to previous publications concerning the treatment of salicylate poisoning by curarization and controlled ventilation. One of the references

cited(2) discusses a case of salicylate poisoning in Great Britain, the cause and effect of major signs and symptoms, and suggested treatment. A six-year-old boy developed signs of salicylate intoxication following 11 days of sodium salicylate therapy (5 grams/day) for rheumatic fever. The symptoms observed included initial drowsiness, vomiting, and epistaxis; later observations included deep and somewhat rapid breathing (50/minute), coma, profuse sweating, and muscular tetany with spasmodic arching of the back accompanied by stiffness of the limbs. On the day of admission to the hospital the blood salicylate level was 66 mg/100 ml. Although this value fell to 40 mg/100 ml during the second day of hospitalization the patient's condition continued to deteriorate. Some blood chemical determinations were performed, but unfortunately neither serum pH nor carbon dioxide tension was estimated. However, because the patient was tetanic, he was presumed to be alkalotic, and alkalizing solutions were not used. Therapy at this time consisted of an intravenous infusion of 1/5 normal sodium chloride solution with 5 per cent dextrose and slow gastric milk drip, 1 pint per 24 hours. Calcium gluconate was administered intravenously in an attempt to control the tetany but was ineffective.

By evening, the patient was still comatose, tetanic spasm was almost constant, the temperature had risen to 102° F, and the respiration had become extremely deep and rapid (70 per minute). Attempts were made to conserve and increase his serum carbon dioxide concentration. Rebreathing through a length of corrugated rubber hose produced a slight fall in the respiratory rate and a slight decrease in rigidity of the limbs. Administration of mixtures of carbon dioxide, 5 and 10 per cent, and oxygen decreased the respiratory rate somewhat but increased the force of the expirations; the rigidity and spasms of the limbs were diminished, but these effects were transient and severe tetany recurred. At this time succinylcholine was administered in an effort to reduce the excursion and the violent nature of the respiration. However, because neuromuscular blockade was incomplete trismus persisted and difficulty was encountered in maintaining an airway. Consequently, complete neuromuscular blockade was induced by the intravenous injection of 10 mg of tubocurarine. When the jaw was relaxed, copious mucoid secretion

was aspirated from the trachea and bronchi, and controlled intermittent positive-pressure respiration was instituted; the patient was made to breathe oxygen and nitrous oxide, each at the rate of 3 liters per minute.

This treatment resulted in cessation of sweating; the pulse rate decreased from 140 to 100 beats per minute and the temperature fell from 101 to 99.4°F. Additional doses of tubocurarine were injected at intervals as needed to maintain curarization. Approximately 13 hours after initiation of controlled-respiration therapy, intermittent positive-pressure respiration was discontinued and the patient was placed in an oxygen tent. Shortly thereafter, the patient's breathing was normal in rhythm and depth and became stabilized at a rate of 24 per minute; the pulse rate was 110 per minute and the temperature was normal. However, coma persisted and the muscle tone of his limbs was still slightly increased, but there were no further spasms of tetany.

On the third morning the patient's blood salicylate level was 29.5 mg/100 ml. The intravenous 1/5 normal sodium chloride infusion was replaced by a 1/6 molar lactate solution because it was thought that the patient had entered the phase of metabolic acidosis. Furthermore, 2 grams of potassium salt was added to the gastric drip to correct for deficiency of this electrolyte. By the fourth morning the patient regained consciousness, although he was listless and drowsy. At this time his blood salicylate level was less than 5 mg/100 ml. Subsequently, improvement was rapid and eight days following admission he was discharged, completely recovered from the salicylate intoxication.

The rationale of using curarization and positive-pressure respiration in the treatment of salicylate poisoning is based on the concept that the major symptoms of intoxication are secondary to hyperventilation. For example, the elimination of carbon dioxide by hyperventilation rapidly induces respiratory alkalosis; and the state of alkalosis is apparently responsible for the development of tetany. Since tetany in salicylate intoxication is independent of blood calcium levels, it would not be relieved by the administration of calcium salts. Later, probably as the result of renal compensation (excretion of fixed cations), metabolic acidosis supervenes. Some observers have suggested that acidosis is due to

the accumulation of organic acids and it has also been suggested that hyperactivity of the respiratory musculature contributes to acidosis. In the case of children, it has been emphasized that the tremendous muscular exertion in hyperpnea will increase metabolic activity and, consequently, the body temperature. This muscular activity would also produce some degree of ketosis and sweating which, in turn, results in dehydration.

As early as 1945, Rapoport and Guest(3) reported that in dogs and monkeys experimentally poisoned with salicylates, barbiturate has the capacity to suppress hyperventilation and to restore the serum pH and blood carbon dioxide levels to normal. However, central depressants tend to enhance the toxic effects of salicylates on the central nervous system and, therefore, should not be employed in treatment of salicylate poisoning. On the other hand, tubocurarine has no significant central effect and appears to be a desirable alternative. Rees and colleagues (1) indicated that curarization and controlled ventilation will abolish all the major clinical manifestations of salicylate intoxication secondary to hyperpnea and that when the blood salicylate concentration has been reduced to a non-toxic level by the kidneys (10 to 18 hours) the patient will recover uneventfully. They further stated that under supervision of a skilled anesthesiologist this method of treatment seems to offer the great advantage of "counteracting the mechanisms by which life is endangered."

The method employing curarization and controlled respiration appears to be a promising development in the treatment of salicylate intoxication, particularly in severe cases. However, it would seem that additional clinical experience with this technic is needed in order to establish more definitely its value in the treatment of salicylate poisoning.

STATISTICS OF 99 POISONING CASES
REPORTED IN ARIZONA DURING
DECEMBER, 1960

AGE:

68.1% involved under 5 year age group	(67)
2.0% involved 6 to 15 year age group	(2)
16.1% involved 16 to 30 year age group	(16)
6.0% involved 31 to 45 year age group	(6)
6.0% involved over 45 year age group	(6)
2.0% were not reported	(2)

NATURE OF INCIDENT:

79.2% accidental	(78)
19.1% intentional	(19)
2.0% were not reported	(2)

TIME OF DAY:

24.2% occurred between 6 a.m. and noon	(24)
31.3% occurred between noon and 6 p.m.	(31)
18.2% occurred between 6 p.m. and midnight	(18)
7.0% occurred between midnight and 6 a.m.	(7)
19.2% were not reported	(19)

OUTCOME:

100% recovery	(99)
0.0% fatal	(0)

CAUSATIVE AGENTS:

<i>Internal Medicines</i>	<i>Number</i>	<i>Percent</i>
Aspirin	30	30.4
Other Analgesics	2	2.0
Barbiturates	8	8.1
Antihistamines	3	3.0
Laxatives	1	1.0
Cough Medicine	1	1.0
Tranquilizers	6	6.1
Others	12	12.2
Subtotal	63	63.8
<i>External Medicines</i>		
Liniment	0	0.0
Antiseptics	0	0.0
Others	0	0.0
Subtotal	0	0.0
<i>Household Preparations</i>		
Soaps, Detergents, etc.	1	1.0
Disinfectants	0	0.0
Bleach	4	4.0
Lye, corrosives, drain cleaners	4	4.0
Furniture and floor polish	2	2.0
Subtotal	11	11.0
<i>Petroleum Distillates</i>		
Kerosene	3	3.0
Gasoline	1	1.0
Others	5	5.1
Subtotal	9	9.1

Cosmetics	2	2.0
Pesticides		
Insecticides	3	3.0
Rodenticides	0	0.0
Others	0	0.0
Subtotal	3	3.0
Paints, Varnishes, Solvents, etc.	5	5.1
Plants	1	1.0
Miscellaneous	2	2.0
Unspecified	3	3.0
TOTAL	99	100.0

External Medicines		
Liniment	6	0.6
Antiseptics	6	0.6
Others	12	1.1
Subtotal	24	2.3
Household Preparations		
Soaps, Detergents, etc.	15	1.4
Disinfectants	14	1.3
Bleach	43	4.1
Lyc, corrosives, drain cleaners	27	2.6
Furniture and floor polish	11	1.1
Subtotal	110	10.5

Petroleum Distillates		
Kerosene	28	2.7
Gasoline	14	1.3
Others	31	2.9
Subtotal	73	6.9

Cosmetics	20	1.9
Pesticides		
Insecticides	50	4.8
Rodenticides	4	0.4
Others	8	0.8
Subtotal	62	6.0

Paints, Varnishes, Solvents, etc.	39	3.7
Plants	26	2.5
Miscellaneous	51	4.9
Unspecified	28	2.7

TOTAL	1047*	100.0
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*The total number of causative agents exceeds the actual number of poisoning cases since in certain individual poisoning incidents more than one agent was involved.

Willis R. Brewer, Ph.D.
Dean, College of Pharmacy
The University of Arizona, Tucson
Albert L. Picchioni, Ph.D.
Pharmacologist and Director
Arizona Poisoning Control Program
The University of Arizona, Tucson
Lincoln Chin, Ph.D.
Pharmacologist
The University of Arizona, Tucson

REFERENCES

1. Rees, H. J., Stead, A. L., and Bush, G. H., Salicylate Poisoning (Correspondence), British Medical Journal, 2:1454, November 12, 1960.
2. Freier, S., Neal, B. W., Nisbet, H.I.A., Rees, G. J., and Wilson, F., Salicylate Intoxication Treated with Intermittent Positive Pressure Respiration, British Medical Journal, 1:1333, June 8, 1957.
3. Rapoport, S. and Guest, G. M., The Effect of Salicylates on the Electrolyte Structure of the Blood Plasma I. Respiratory Alkalosis in Monkeys and Dogs after Sodium and Methyl Salicylate Poisoning, J. Clin. Investigation, 24:769, 1945.

STATISTICS OF 1030 POISONING CASES
REPORTED IN ARIZONA FROM
JANUARY 1 TO DECEMBER 31, 1960

AGE:	
73.4% involved under 5 year age group	(756)
3.3% involved 6 to 15 year age group	(34)
10.0% involved 16 to 30 year age group	(103)
7.5% involved 31 to 45 year age group	(77)
4.4% involved over 45 year age group	(45)
1.5% were not reported	(15)

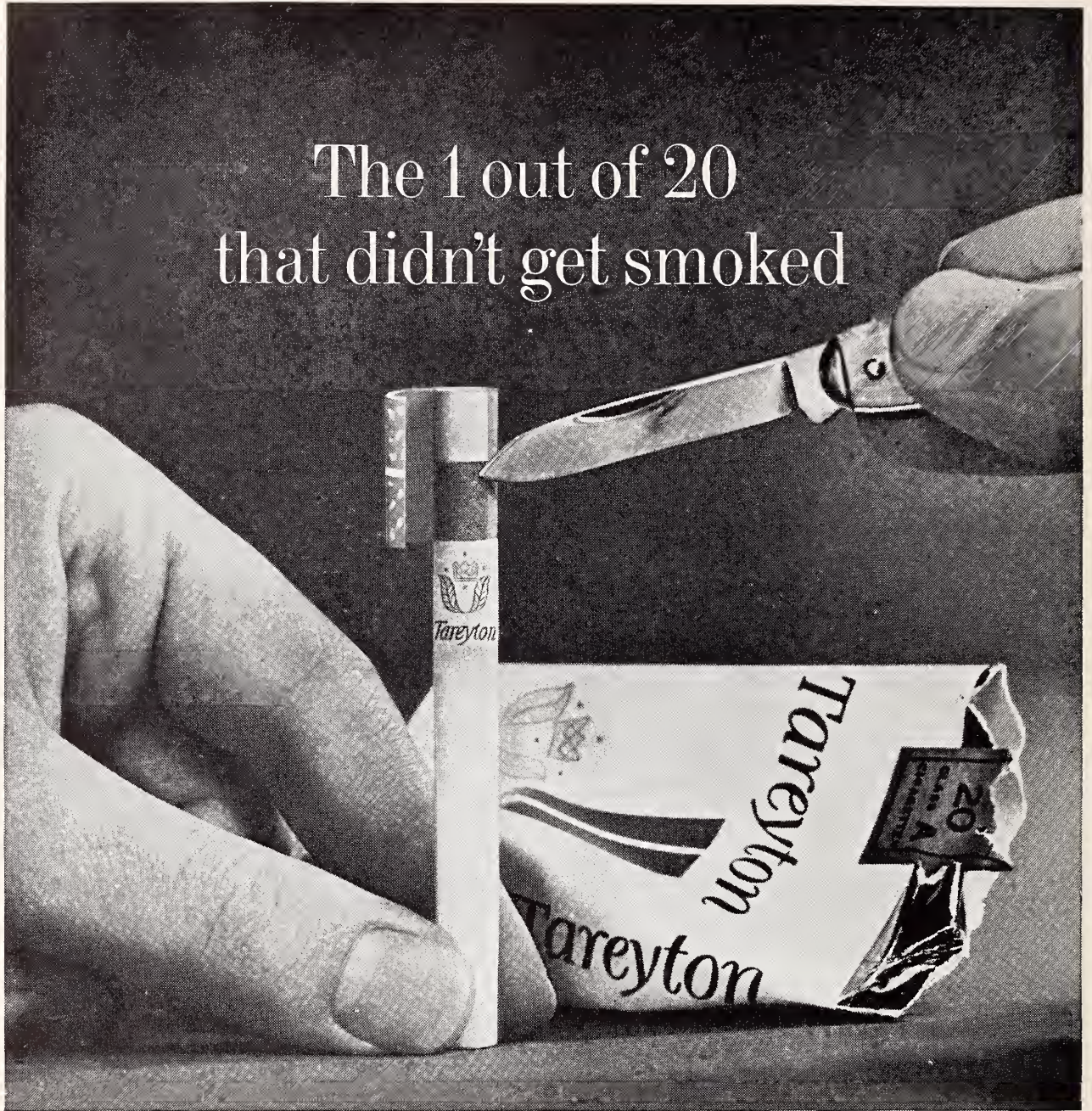
NATURE OF INCIDENT:	
84.5% accidental	(871)
14.8% intentional	(152)
0.6% were not reported	(7)

TIME OF DAY:	
33.0% occurred between 6 a.m. & noon	(340)
28.6% occurred between noon & 6 p.m.	(294)
15.7% occurred between 6 p.m. and midnight	(162)
2.6% occurred between midnight and 6 a.m.	(27)
20.1% were not reported	(207)

OUTCOME:	
97.9% recovery	(1008)
0.5% fatal	(5)
1.6% unknown	(17)

CAUSATIVE AGENTS:		
<i>Internal Medicines</i>	<i>Number</i>	<i>Percent</i>
Aspirin	255	24.4
Other Analgesics	32	3.1
Barbiturates	90	8.6
Antihistamines	25	2.4
Laxatives	24	2.3
Cough Medicine	9	0.8
Tranquilizers	37	3.5
Others	142	13.5
Subtotal	614	58.6

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Future Medical Meetings

The Arizona Medical Association, Inc.

SEVENTIETH ANNUAL MEETING SAFARI HOTEL, SCOTTSDALE, ARIZONA APRIL 26 THROUGH 29, 1961

SCIENTIFIC PROGRAM

THURSDAY, APRIL 27, 1961

7:45 A.M. — Breakfast Panel Discussion

"Recent Advances In Steroid Actions and Uses," Harry E. Thompson, M.D., John Mills, M.D., S. Kent Conner, M.D., Robert T. Manning, M.D., John W. Rebuck, M.D., Alfred M. Steinman, M.D.

10:00 A.M. — "Lung Cancer: A Challenge to the Medical Profession," H. Corwin Hinshaw, M.D.

11:15 A.M. — "Physical Diagnosis In Cirrhosis of the Liver," Mahlon Delp, M.D.

11:45 A.M. — "Management of Hepatic Coma," Robert T. Manning, M.D.

12:30 P.M. — "Surgery of the Liver," John J. Mulholland, M.D.

FRIDAY, APRIL 28, 1961

7:45 A.M. — Breakfast Panel Discussion —

"Edema and Ascites," Mahlon Delp, M.D., Herbert L. Abrams, M.D., H. Corwin Hinshaw, M.D., Robert T. Manning, M.D., John H. Mulholland, M.D., Alfred M. Steinman, M.D.

9:30 A.M. — "Applications of Thoracic Aortography," Herbert L. Abrams, M.D.

10:00 A.M. — "Current Research in the Connective Tissue Diseases," John Mills, M.D.

10:30 A.M. — "Serum Enzyme: Use and Abuse In Clinical Medicine," Robert T. Manning, M.D.

11:15 A.M. — "A New Qualitative Leukocytic Defect In Ulcerative Colitis," John W. Rebuck, M.D.

11:35 A.M. — "Presentation of Annual Award Paper."

12:15 P.M. — "Mechanism of Action and Use of Aldosterone-Blocking Steroids In Edema," Alfred M. Steinman, M.D.

SATURDAY, APRIL 29, 1961

9:00 A.M. — "Combined Diuretic Therapy With Steroids In Resistant Patients," Alfred M. Steinman, M.D.

9:30 A.M. — "Amyloidosis: A Search For The Answer By Chemical, Pathologic, Immunologic, Clinical And Geographic Means," John Mills, M.D.

10:00 A.M. — "New Ultrastructural Diseases of Platelets as a Common Cause of Abnormal Bleeding," John W. Rebuck, M.D.

10:30 A.M. — "Roentgen Aspects of Pulmonary Hypertension And Increased Pulmonary Flow of Blood," Herbert L. Abrams, M.D.

11:15 A.M. — "Management of the Patient With Emphysema," H. Corwin Hinshaw, M.D.

11:45 A.M. — "Surgery of the Elderly," John H. Mulholland, M.D.

BUSINESS SESSIONS

WEDNESDAY, APRIL 26, 1961

8:00 A.M. — Board of Directors Meeting.

2:00 P.M. — House of Delegates — First Meeting.

4:00 P.M. — Reference Committee Meetings.

THURSDAY, APRIL 27, 1961

10:30 A.M. — Opening Exercises

Presidential Address

2:30 P.M. — Blue Shield Annual Corporation Meeting and Board of Directors Meeting to Follow.

4:00 P.M. — Reference Committees (on call).

FRIDAY, APRIL 28, 1961

3:00 P.M. — House of Delegates — Second Meeting.

* * *

GOLF TOURNAMENT

SATURDAY, APRIL 29, 1961

1:00 P.M. — Annual Handicap Golf Tournament, Indian Bend Country Club (Prizes Awarded Following Play).

ENTERTAINMENT

WEDNESDAY, APRIL 26, 1961

6:30 P.M. — Reception

7:30 P.M. — Chuckwagon Dinner

FRIDAY, APRIL 28, 1961

7:00 P.M. — President's Reception

8:00 P.M. — President's Dinner-Dance

(Note: — Special dispensation for the menu has been granted all Catholics by Bishop Francis J. Green of the Diocese of Tucson.)

SPECIALTY GROUP MEETINGS(Note: Specialty Group Meetings, Luncheons and Dinner are open to *All* Registrants.)

THURSDAY, APRIL 27, 1961

1:15 P.M. — Luncheons

Arizona Arthritis and Rheumatism Association
"Question And Answer Period On Arthritis in Connective Tissue Diseases," John Mills, M.D.
Arizona Chapter — American College of Chest Physicians

"Bronchoscopy and Bronchography In Diagnosis of Pulmonary Diseases," H. Corwin Hinshaw, M.D.

and —

"Radiologic Aspects of Operable Heart Disease," Herbert L. Abrams, M.D.

Arizona Chapter — American College of Sur-

geons. "Title To Be Announced," John H. Mulholland, M.D.

5:00 P.M. — Cocktail Hour — Western Reserve University Alumni Association.

Cocktail Hour and Business Meeting only.

7:00 P.M. — Arizona Chapter—American Academy of General Practice.

"A Pistol-Packing Arizona Doctor," Mahlon Delp, M.D.

FRIDAY, APRIL 28, 1961

1:00 P.M. — Luncheons

Arizona Society of Pathologists

"Effects of ACHT and Cortisone in Leukocytic Defenses," John W. Rebuck, M.D.

Arizona Society of Pediatricians

"Inborn Errors of Metabolism," Robert T. Manning, M.D.

Arizona Society of Psychiatrists

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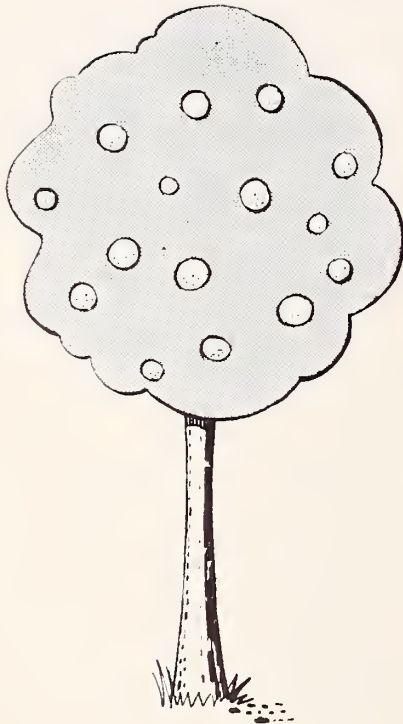
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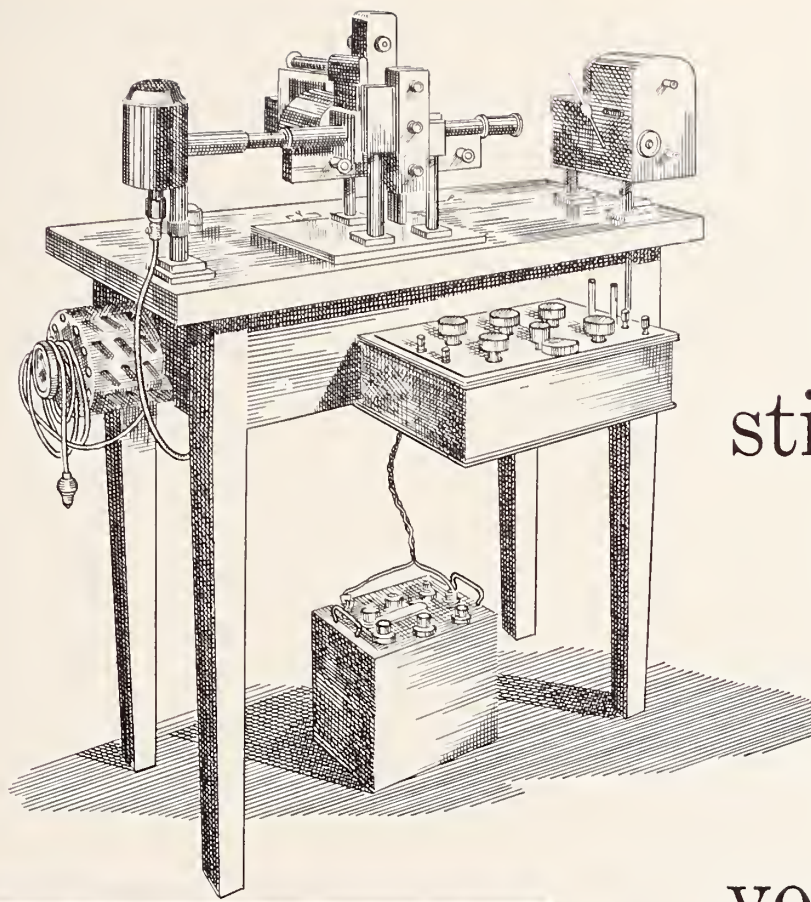
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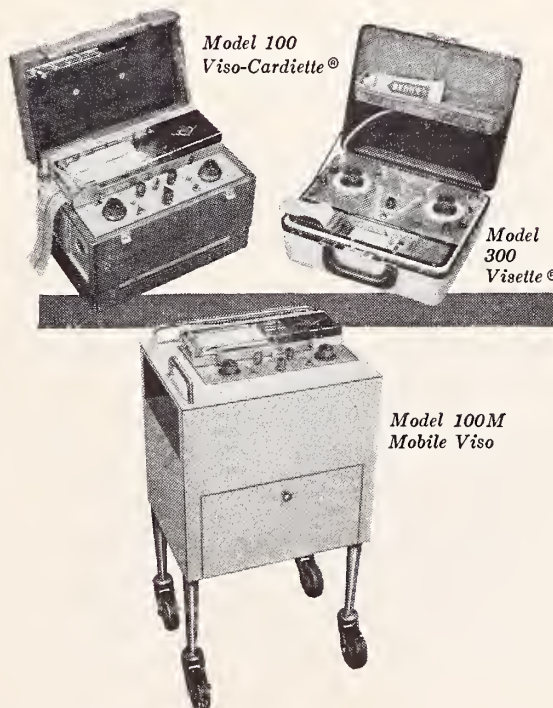
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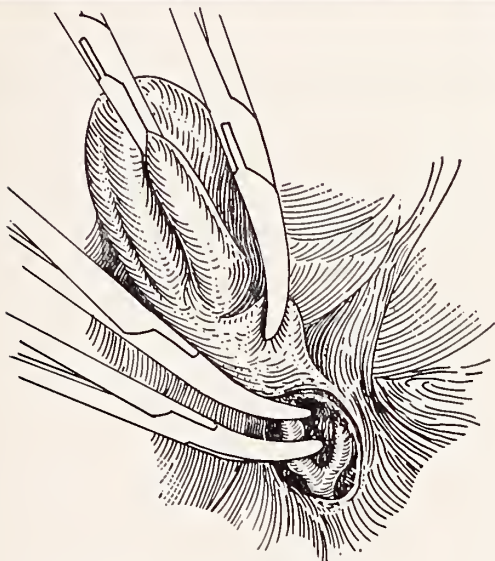
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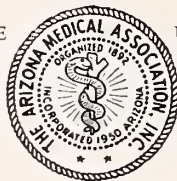
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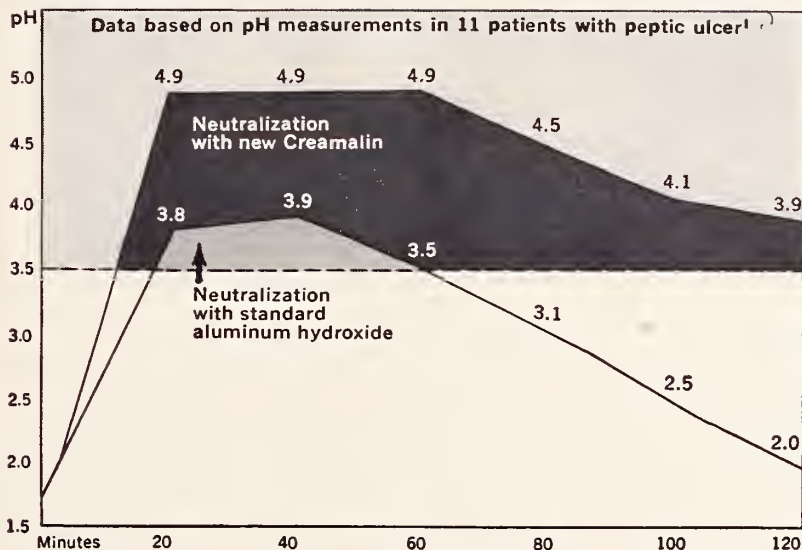
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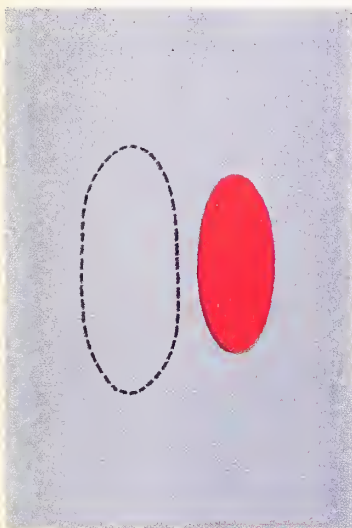
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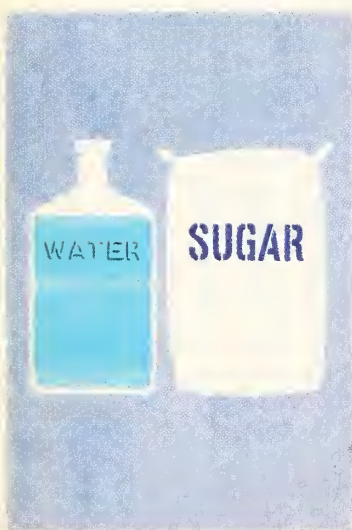
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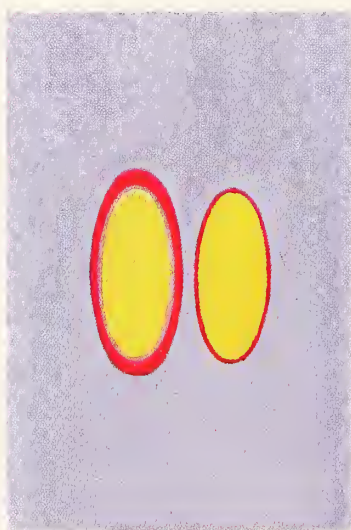
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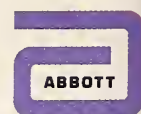


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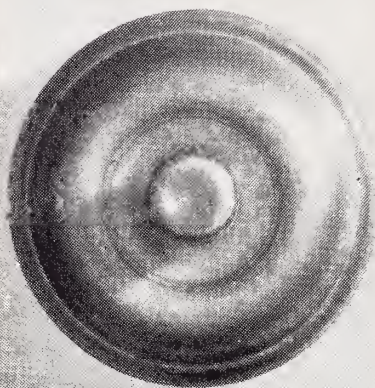
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'Aerosporin'® brand Polymyxin B Sulfate	10,000 Units	5,000 Units	5,000 Units
Zinc Bacitracin	500 Units	400 Units	400 Units
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Hydrocortisone	—	—	10 mg.

Supplied:	Tubes of 1 oz., ½ oz. and ⅛ oz. (with ophthalmic tip)	Tubes of 1 oz., ½ oz. and ⅛ oz. (with ophthalmic tip)	Tubes of ½ oz. and ⅛ oz. (with ophthalmic tip)
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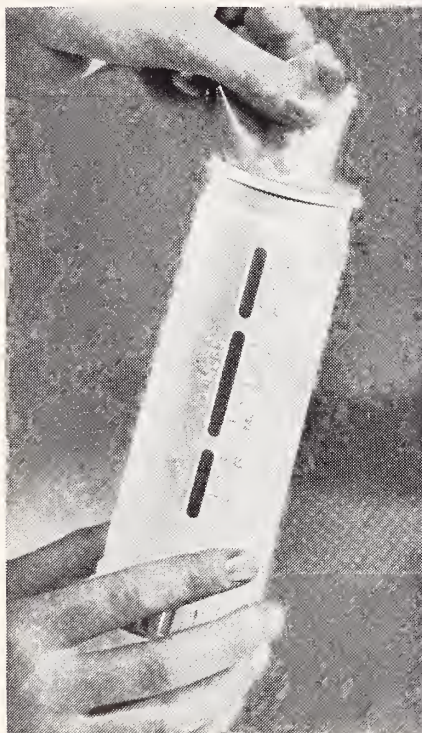


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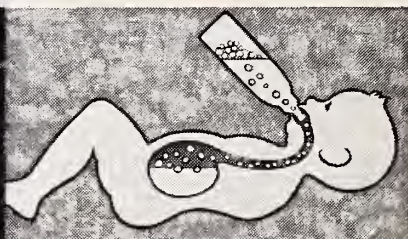
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Because the disposable bottle is pre-sterilized, it eliminates the possibility of contamination through improperly sterilized bottles.



With conventional bottle air has to get inside bottle for milk to come out. Nipple often collapses and baby has to suck harder, so more air gets into his stomach. Both overfeeding and underfeeding can ensue, along with the aerophagia and flatulence which can produce colic, spitting up, and after feeding distress.



Natural design nipple of Playtex Nurser assures even flow. Its pliable inner bottle contracts with atmospheric pressure as formula is consumed. Baby takes more nourishing formula, less swallowed air to cause discomforting spitting up and colic.

dramatically reduces spitting up and colic

To the members of the medical profession who recognize the advantages of breast feeding—here's a completely new concept in baby feeding that all doctors will welcome. The new Playtex Nurser. It features a soft, pre-sterilized inner bottle which is disposable, and a broad, non-collapsing nipple which produces a sucking action similar to that in breast feeding.

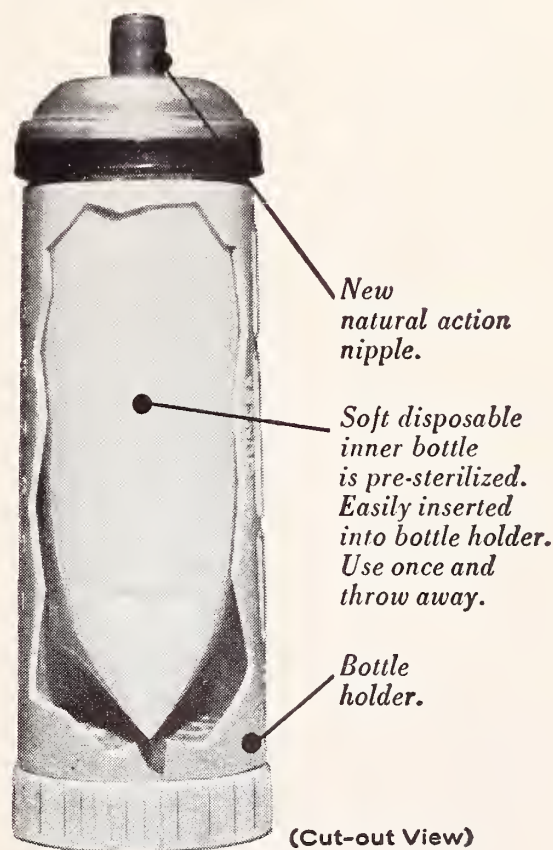
Because the outside atmospheric air pressure contracts the soft inner bottle, the formula is withdrawn more naturally than with conventional rigid baby bottles. There is no vacuum formation to set up air blocks. The natural-action nipple induces sucking which makes for less air swallowing, and less spitting up—and in so doing, promotes the healthful mouth-jaw exercises the mother's breast provides.

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"The nearest approach to breast feeding"



Arizona Medical Association Reports

Arizona Medicine

May, 1961



Vol. 18, No. 5

Board of Directors Meeting February 12, 1961 Minutes

The Chairman opened discussion relating to the Arizona State Tuberculosis Sanatorium calling attention to those in attendance that much time had been already devoted to this subject at the meeting of the Board held December 18, 1960; accordingly, he asks that each speaking to the question be brief and to the point.

In attendance, representing doctors of the Pima County area, was William G. Ure, M.D. (Tucson), Doctors James E. O'Hare and Orin J. Farness (both of Tucson), whose presence had been anticipated, did not appear; those representing the Maricopa County area included Doctors Derrill B. Manley, Ben P. Frissell and Fred J. Payne (Chief of the Bureau of Preventive Disease Control of the State Health Department, substituting for Doctor Stanford F. Farnsworth, Director of the Maricopa County Health Department).

The Chairman presented and read: (a) resolution adopted by the Pima County Medical Society January 10, 1961 relating to the subject; (b) letter of James E. O'Hare, M.D., of Tucson expressing his views in the matter; and (c) resolution pertaining adopted by the Maricopa County Medical Society February 6, 1961.

Doctor Ure first spoke to the question presenting and reading a prepared statement thereon, which was ordered received and made a part of the record.

Doctor Payne next spoke to the question. He reviewed statistics relating to the experience in both Pima and Maricopa Counties and filed a prepared statement thereon, which was likewise ordered received and made a part of this record.

Next to speak on the subject was Doctor Frissell, who presented and read a prepared brief thereon, which was ordered received and likewise made a part of the record.

Doctor Manley then spoke to the question, distributing a prepared statement on the case for pediatric tuberculosis beds which he reviewed, and this was ordered received and made a part of the record.

The Chairman then declared the meeting open to questions. He appealed to those wishing to speak to confine their questions to "need" for a tuberculosis sanatorium rather than entering into the matter of operational detail.

It was moved and seconded that we reaffirm the motion passed at the last meeting.

It was moved and seconded that the motion

on the floor be amended to read: that this Board of Directors reaffirms the resolution as stated in our last meeting, recommending that its site be approximated to the medical school site (to be) recommended by the Arizona Medical School Study. Upon call of the question and vote, the Chairman declared the motion lost.

On call of the question and vote the Chairman declared the initial motion on the floor carried, Doctors Dudley and Hileman voting in the negative.

EXECUTIVE COMMITTEE REPORT

Lindsay E. Beaton, M.D., President, and Chairman of the Executive Committee of the Board of Directors, reported the following actions taken by said Committee at a meeting held February 11, 1961:

Group Life Insurance Program

DR. BEATON: The Executive Committee, in meeting yesterday, undertook many items of business; one of them was the proposal from the California-Western States Life Insurance Company, whose representative, Mr. George Littlefield, is present today. In brief, this proposal is to offer life insurance to all members of the Association under the age of 59 in amounts of \$10,000.00, these members to be active on the job, the insurance to be given without examination; for members from 60 to 80, on questioning or examination at the applicant's expense, they also could be insured. This is term insurance, the premiums will increase approximately in 5 per cent increments above the age of 60. At the age of 60 there is a decrease in the amount of coverage by exactly 5 per cent per year. In order for this to be written by California-Western States it will be necessary for fifty per cent of those under the age of 60 to apply. There is no possibility of the termination of this insurance unless the Association sponsors another program without permission of the underwriter. The last item about this insurance is that it also provides the possibility of obtaining \$2500 for your wife and \$2500 for each dependent child under the age of 19. This in essence is the proposal; the Executive Committee recommends its acceptance, which merely means that Mr. Littlefield's company would have the right to go out and solicit this business from the members of our Association. He assures me personally that in other situations of this sort, there has been no difficulty about getting fifty per cent of those

under 60. We recommend its acceptance and I will move its acceptance, and we've asked Mr. Littlefield to be present to answer any technical questions you may have about this program.

DR. POLSON: I second the motion. Furthermore, I was one of the two members of the Medical Economics Committee that met to consider this. I checked it out since and I found that it's a very good proposal; the rates are good, the whole program is very sound.

MR. LITTLEFIELD SUBMITTED TO QUESTIONING.

On call of the question to the motion on the floor and vote, the Chairman declared the motion carried.

DR. BEATON: The Executive Committee has also reviewed a proposal from the National Casualty Company of Detroit asking that it be allowed to solicit the membership for selling of insurance for the provision of additional coverage on our existing policies against accidental death, providing for total disability in cases of certain dismemberments and other forms of mayhem. The Executive Committee recommends and moves that the National Casualty Company of Detroit be allowed to solicit the membership for the sale of this additional coverage.

Mr. Littlefield advised that this additional coverage is not to be offered to the membership indiscriminately in instances where known serious disability exists.

Mr. Littlefield further stated that the National Casualty Company of Detroit is now in position to increase the amount of disability limit from \$500 to \$600. With the two contracts now in existence this will mean that income can be insured up to \$800 per month. The company reserves the right to refuse such additional coverage when an insured has in effect policies covering income in excess of \$1500 per month. This offer will go forth by letter announcement in order that the insured may be aware of the extension of the amount of disability limit to \$500.

On call of the question and vote the National Casualty Company of Detroit is allowed to solicit the membership for this additional coverage.
Council Action Rescinded

DR. BEATON: Our first item of business was to discuss, and I hereby move, the Council action of February 15, 1953 be rescinded; this action required a Board of Directors meeting in mid-January; the reason to rescind this is the

present setup of December and February meetings of the Board of Directors which better meets our needs with regard to considering and influencing legislation. I therefore move that this previous Council action be rescinded.

Which motion was duly seconded and carried.
Secretary

DR. BEATON: It is with regret that I must announce to you that Doctor Lorel Stapley has submitted a statement to the effect that his health will preclude his being available for service as Secretary any longer, but he did ask that, if possible, he have the privilege of completing his term as Secretary; as President, I have written him saying that we did regret his decision, that we would respect it in view of what his doctor had written us and that, if at all possible, we would grant him this privilege of completing his term. So no resignation, therefore, is submitted to us and no action required. I'd like the Board to know that Doctor Stapley will not be able to serve again next year and that this is the reason. Doctor Smith, as you will remember, has, at your direction, assumed Doctor Stapley's duties as an Acting Secretary and he says that he will be able to carry on in Doctor Stapley's stead until the next election. This is very generous of Doctor Smith as it puts an extra load on him at a time when he is harried, I know, but this is the situation. This is just for your information and requires no action.

AMA Delegates

DR. BEATON: Thirdly, the American Medical Association has informed us that since our official membership now exceeds 1000, a second Delegate to the House of Delegates of the AMA is to be appointed. This, presumably, will be sent to the Nominating Committee for its action and nominees will be presented to the House of Delegates.

Two matters have come up in this regard. I would like to call your attention thereto, and would like to have your approval of the action taken by the Executive Committee in disposing of them. The first is, that under the terms of the By-Laws as now written, Alternate Delegates, unless they be members of the House of Delegates or Officers of the Association in some other capacity, are not available for nomination as Delegate. The reason for this is that our By-Laws provide that only members of the House of Delegates, that is to say, Delegates or Offi-

cers — members of this Board — can be elected to office, so the Delegate being in office, the Alternate cannot be elected as a Delegate to AMA; that is, unless he is appointed as a Delegate to our own House. The possibility arises that this should be amended, perhaps to make the Alternate Delegates officers, then they will attend Board of Directors meetings and would thereby be available, as replacements, for Delegates. There certainly would be an advantage to this; we think that probably our AMA Alternate Delegates should go to AMA meetings and we think that if they are going to go, they should be up-to-date on what the Association is thinking so they can represent the Association philosophy and belief. At the present time our Alternate Delegate has not gone to meetings except on a single occasion all this time as Alternate, and he has no way of knowing what we do.

The second thing that comes up, and this really set us back a little bit when we saw it — this year the Southern District, Pima County District, gets an additional Director, and the Central District, Maricopa County, gets one additional director. There are twenty members on the Board. If we are to add one additional Director, Central, and another one from Pima, a new Delegate to AMA and two Alternates, we would then have twenty-five members of our Board of Directors, which would be the maximum allowable under the current Articles.

So you face, then, the possibility of either removing this restriction of twenty-five on your Board of Directors, or changing the formula by which Directors are selected from the different Districts, by redistricting or perhaps by changing the number, which now is that there will be one member for each district and an additional one for each major fraction over 100. These things seem to us like major problems for the future and therefore, on behalf of the Executive Committee, I move that the Board refer this entire matter to the Articles of Incorporation and By-Laws Committee so that it may consider this matter and not for approval at the next House of Delegates at all, because we're in good shape right now; even with the addition, we will still be under twenty-five; but so that sometime before the 1962 meeting some decision may be reached about this, and the Executive Committee, although this is not a part of the motion, does recommend that the Articles of Incorpora-

tion and By-Laws Committee consider a change of formula rather than a change in the Articles, for the reason that a Board of Directors of over twenty-five is rather unwieldly to do very much business. When you begin to get a Board of Directors of fifty, it would probably not serve as well as a Board of Directors of twenty-five. At least, this is our thinking.

The motion duly seconded, was carried.

Administration — Financial

DR. BEATON: In behalf of our Treasurer, the Executive Committee would like to recommend that we change our bookkeeping to a calendar year basis. The main reason for this now is that the way we split on a fiscal year, the annual meeting expenses are paid out in one year and the money for the payment comes in in the next, and our Auditor and our Treasurer believe that a calendar year basis for our bookkeeping would be more efficient.

The motion, duly seconded, was carried.

The Executive Committee has reviewed the financial reports and I move their acceptance. I assure you we're in good shape; we've reviewed these monthly reports just so that the Board will not have to go over this. However, certain things have come up that disturb us. We are exceeding our budget and the whole question of what we're going to do, either about retrenching or having a dues increase, remains to be thrashed out. We are growing out of our quarters and there are no new facilities available in the Central Towers Building. Our staff cannot do the work we are asking of it, and the question of a staff increase is urgent, particularly if Arizona Medicine remains under our aegis, which I think it should, and if the Board of Medical Examiners remains associated with us. There is certainly some necessity of relieving our Executive Secretary, Mr. Carpenter. All of these questions were felt to be too great to be decided yesterday and, therefore, the Executive Committee has scheduled a special meeting on the 5th of March to discuss these matters and to come up with some specific recommendations on all of these matters before the Board of Directors meeting in April.

With that much preamble I would like merely to move at this time the approval of the financial reports for December, 1960 and January, 1961.

Which motion was duly seconded and carried.

The Executive Secretary was directed that the members of the Board of Directors be apprised of the date and place of the next Executive Committee meeting and invited to attend.

Legislative Committee

DR. BEATON: S.B. 121 dealing with contraceptive advertisements and S.B. 120 amending the Medicine and Surgery Act as pertains to Board membership, certain increases in fees and elimination of the two-year statutory limitation provision relating to refusal, suspension or revocation of license, are both Association-sponsored bills and have been, of course, introduced in the Senate. (Actions ratified)

S.B. 151 and S.B. 152 amending the "Dispensing Opticians" and "Optometrists" Acts, supported by both the Maricopa and Southern Ophthalmology Societies, in an attempt to prohibit advertising of prescription and contact lenses and frames by store chains, were recommended supported. (Board concurs in support of these two measures.)

H.B. 77 providing for date stamping of containers of milk delivered to the ultimate consumer. (Board determines to take no stand.)

H.B. 86 providing for the establishment of a Cancer Advisory Committee. (Board determines to take no stand, pending receipt of further information thereon.)

H.B. 87 involving amendments to the Occupational Diseases Act. (Board determines to support three of the four changes dealing with the medical aspects of the measure, but take no action relating to administration and method of payment for occupational diseases, which is considered not the affair of medicine.)

H.B. 91 establishes a Radiation Advisory Board in the State Health Department to deal with public health in the matter of irradiation. (Inasmuch as printed copies of this bill are not yet available, giving opportunity to review its content, no action taken.)

H.B. 12 and H.B. 124 dealing with narcotics; the first providing severe penalties up to death for pushers; the second measure not yet available for review, though reported originating out of the Governor's Committee, the Professional Committee voted opposition to both bills; likewise, the Arizona Psychiatric Society. The Executive Committee votes to oppose both measures: first, because of incomplete information about them; second, because it thinks narcotic addic-

tion is a medical matter requiring clarification; and thirdly, it believes that definitive legislation can be written only after a conference of all interested experts: medical, legal, police, legislative, etc. This position is not to be interpreted as any desire not to punish sellers of narcotics and adequately to treat and, if possible, rehabilitate the users of narcotics, but rather that it is hasty legislation not yet complete enough to cover the realities of the tremendous volume of today's narcotic traffic. (Board concurs.)

H.B. 48 and H.B. 51 dealing with removal of sales taxes on medicine, foods, etc. This Board, December last, went on record in support of its Auxiliary's activity furthering the elimination of taxes on medicine. (Board determines to approve these measures, pending analysis by counsel.)

A Psychology Bill is proposed to be introduced by Senator Wine of Pima County. It is designed to provide certification and examination of psychologists. It has the approval of the Psychology Departments of both ASU and U. of A., and reviewed by the three Legislative Committees of the Psychiatric Societies in this State, receiving their approval. (Board approves the certification and examination of psychologists as proposed in this measure.)

S.B. 64 providing for the reporting of "Epilepsy" to the State Department of Health and the State Motor Vehicle Division. It is felt that while the end result of this bill is to be applauded in that none of us want to have chronic epileptics out driving, it is not known whether this measure is the best rule or a really inclusive bill. We were also concerned with people who have transient loss of consciousness from other causes, whether it be diabetes or heart disease, etc.; we doubted that this was the best rule; we had not been consulted on this bill; we knew nothing about similar bills; so it is recommended that no stand be taken on this. (Board concurs.)

H.B. 22 requires doctors of medicine at the State Hospital and serving Governmental Health Departments to be licensed within six months following employment. (Board opposes measure.)

A Bill is proposed — we do not know the number as yet — providing for branches of the Children's Colony. Mr. McIntire of the Children's Colony, wants the branches in Tucson and Phoenix. His reasons for wanting to put these Colonies there instead of enlarging the Children's

Colony at Randolph are roughly as follows: one, the institutions will be closer to places where most of the children come from; two, they will be close to their families, which may be important in certain cases; three, the employment pool in Randolph and Coolidge is completely drained — he can no longer get the people he needs for staff attendance; four, he has no access to the kind of detailed specialist medical services he needs (pediatricians, psychologists, psychiatrists, eye, ear and nose and throat men, etc.). It is reported that there is a four-year waiting list for admission to the Children's Colony. The Executive Committee approved this bill on the erection of new Children's Colony Branches. (Board concurs.)

Another bill provides for an intermediate institution for delinquent children. (The Board previously acted favorably upon such measure providing the building thereof is situated in or near either Phoenix or Tucson.)

It is also understood the Arizona Podiatry Association is planning to introduce a measure prohibiting fluoroscopic shoe fitting devices. It is recommended the Association support such measure, if introduced. (Board concurs.)

H.B. 73 provides penalties for indecent exposure of the human body. It is recommended disapproved on the grounds, again, that it does not take into account modern psychiatric knowledge about sex offenses. (Board concurs.)

Meetings

DR. BEATON: I should like to report to you next, very briefly, on three meetings that I have had. The first, in company with Doctor Manning, was with the Board of Basic Sciences. The Basic Science examiners are concerned about recent opinions given by the former Attorney General, Wade Church. They have become merely a rubber stamp and anybody who wants to get into the State can get in so far as the Basic Science Board is concerned. At the end of the talk it was felt that the only thing we can do to help is to let our counsel see the opinions they have had and advise them a little bit about where they stand legally and what the next step should be, whether it's going to be necessary to propose legislation, or whether there can be some new interpretations given, etc. And we have, therefore, subject to any disapproval on your part, asked that Mr. Jacobson make himself available to the Basic Science Board, if they should want

his opinion. They have no counsel themselves except for the Attorney General, and he has not been giving opinions that have been useful to them, and these gentlemen, believe me, are all very honest, sincere individuals and want to do a good job. They are not trying to keep the doctors out and I can tell you some hair-raising stories about men who have flunked our Basic Science Board examinations two and three times with marks of 20 and 30 in every subject and the minute this new interpretation was given, they applied and got in — men who took a one-hour examination in pathology, bacteriology and physiology and were given a grade that our Basic Science Board then had to accept as being equivalent to our two- or three-hour examination separately in each one of these subjects.

My second visit was with Mr. Robert Pickrell, the new Attorney General, in company with Mr. Carpenter. We went to see if it would be possible to have the Board of Medical Examiners represented by the same counsel who represents the Arizona Medical Association, thinking that if this could be done, we could have Mr. Jacobson representing the Board of Medical Examiners and there would be a satisfactory liaison and the Board of Medical Examiners would be represented by a man of stature. This was agreed upon and Mr. Pickrell said yes and Mr. Jacobson said yes, but when the statute was checked it was found that anyone who accepted a position of this sort, as Mr. Jacobson would have, would have been obliged to withdraw from any litigations in which the State was a party. In default of this, Mr. Pickrell appointed a young man, a Mr. Charles T. Stevens, who is, I think, doing a good job for the Medical Examiners; the members like him, and the idea is that on any case that requires particular attention, Mr. Jacobson will give Mr. Stevens a hand. May I say that Mr. Pickrell was friendly to us and I have written him a letter thanking him for this, and if ever legislation is required to change this or to make available funds, we asked Mr. Pickrell if he would stand behind us.

My third visit, again in the company of Mr. Carpenter, was to the Governor. He agreed to work more closely with Medicine and stated that he would at all times welcome any suggestions or recommendations it may have.

Benevolent and Loan Fund Committee

The Valley National Bank of Phoenix — Trust

Agreement has been ratified and the funds transferred to the account. Individual contributions totaling \$219 have been received from the membership, to be credited to this account. Similar contributions will be accumulated and transferred to the Bank semi-annually.

Administration

Letters from the staff expressing appreciation for the Christmas bonuses granted were acknowledged.

Central Office Advisory Committee

It was reported that legal services for the calendar year 1960 amounted to \$7800. Counsel has been paid a retainer at the rate of \$350 per month and the Treasurer recommends that such retainer be increased monthly to more evenly account for services rendered. The Executive Committee approved the payment of a monthly retainer of \$500 effective January 1, 1961; and further authorized the payment of \$3,604 to counsel in settlement of its 1960 account. (The Board ratified this action.)

Industrial Relations Committee

The death of Doctor Kenneth G. Rew was reported, creating a vacancy in the membership of the Industrial Relations Committee. The Board concurred in the interim appointment by the President of Doctor Charles P. Neumann of Tucson to serve until the next annual organizational meeting of this body, with the understanding that he will be considered for reappointment for a full term. The Arizona Industrial Commission has likewise appointed Doctor Neumann to serve as a member of its Medical Advisory Board.

Several other matters were discussed and disposed of, including: (a) settlement of the Frazier case; (b) review of the Industrial Relations Committee's notice referring to the wish of the Arizona Industrial Commission that doctors not make statements regarding legal responsibility of a given accident, and pertaining to reporting psychiatric diagnosis in a certain form; (c) appointed a group of ophthalmologists to consult with the Industrial Relations Committee in certain matters concerning eye injury dealing with loss of vision (Doctors Thoeny and Toland, both of Phoenix, and Doctor Burr of Tucson, were the designees); and (d) determined that existing liaison activities were adequate to consider third party relationships in medicine. (Board ratifies actions.)

Miscellaneous

The AMA requests nominations of two or three persons from which they could select a legislative "keyman". Doctor Hamer has previously served in this capacity and is agreeable to relinquishing the assignment; accordingly, Doctor Melick is appointed as first choice and Doctor Dudley as second, he to serve as an assistant. (Board approves.)

The President reports that on request of AMA, he has communicated with the Arizona Congressional Delegation reaffirming the continuing position of this Association in support of the Kerr-Mills legislation relating to care for the aged. Senator Goldwater and Representative Rhodes responded favorably. A special letter was forwarded to Senator Hayden, who is not of like mind and response is being awaited.

Joint complaint of Doctors Ortiz and Greth, both of Phoenix, involving the Pan American Underwriters, referable to professional services rendered bracero farm workers and their inability to receive compensation therefor, has been investigated by the Medical Economics Committee and following investigations it has concluded the complaint to be justifiable. The Committee will be requested to confer with the Valley Produce Growers in an endeavor to obtain its cooperation to insist upon a realistic fee schedule and free choice of physician.

Professional Committee

Clarifies and reaffirms its previous stand on health legislation, assuring that it was not intended to disturb existing necessary teaching programs in operation in county hospitals.

Recommends that a Medical Director be appointed to serve under the new Director of Civil Defense to bring disaster control under medical superintendence. The Executive Committee recommends that the Governor's Committee on Civil Defense be communicated with so recommending, the names of Doctor Darwin W. Neubauer of Tucson and Doctor Howard W. Kimball of Phoenix to be suggested, each having been active in Medical Civil Defense. (Board approves)

Disapproves the solicitation of laboratory work either directly or through the mail. (The Board determined that the membership be informed that the Association frowns on mail solicitation of business by clinical laboratories, es-

pecially those that are not headed by qualified clinical pathologists.)

Recommends Board endorsement of the Duval County (Florida) Society's opposition to a ruling of the Joint Commission on Accreditation of Hospitals; i.e. that "only reports of clinical laboratory work done in laboratories supervised by qualified medical pathologists should be accepted for hospital inpatients or outpatients — this should be the original report from the laboratory, properly authenticated, placed on the patient's record"; the Society taking the position that laboratory work attached to the clinical record by any responsible staff officer should be accepted at its face value. It is the feeling that the Joint Commission should be informed of this recommendation and told to stop the trend toward removal of authority for the patient from individual doctors of medicine. The Executive Committee joins in advising such endorsement. (Board concurs.)

Recommended that the Association support AMA in its ECFMG ruling requiring foreign medical school graduates to qualify and become certified prior to acceptance for hospital engagement. (Board approves.)

Approves Maricopa County Society's policy dealing with community development programs, including construction and administration of hospitals, which can be accomplished through various approaches such as: (a) creation of hospital districts under community sponsorship; (b) creation of non-profit corporations; and (c) proprietary enterprises operating under the free enterprises system; provided that all these new facilities meet the ethical and professional standards established in the existing accredited hospitals in the community. The Executive Committee believes this a proper statement, but it wishes to recommend that before it is accepted as an official statement of the Association, a change be inserted to indicate that while proprietary hospitals are perfectly ethical and proper, and at the present time in medicine may be necessary to meet certain needs in certain places, that they are definitely a third choice and that the other two forms of hospitals, that is, district hospitals and non-profit hospitals, are preferable and the community should be encouraged to provide the first two for their sick patients rather than to rely on proprietary hospitals. (It was so moved and ratified by the Board.)

Recommends that advertising in *Arizona Medicine* and exhibiting during the annual meeting the product "Enzylac" be permitted provided that such advertisements and exhibits be screened in advance to assure that all false claims are deleted. (Board concurs.)

Reports that there appears to be no need for the development of a master plan for mental health as suggested by the Tucson Community Council. (Board concurs.)

Recognizes the need for better reporting of contagious diseases, suggesting that possibly the State Health Department might effect a better system to accomplish this objective. (Board concurs.)

Blair W. Saylor, M.D. resigns from membership on the Professional Committee. (Board accepts resignation.)

Professional Liaison Committee

Seeks authority to send a delegate to the 8th National Conference of Physicians and Schools. Not having opportunity to review the program to assure special interest to Arizona, and with limited resources, unless such program is received prior to the next meeting of the Executive Committee, it is recommended that with no program and no money, there be no delegate. (Board concurs.)

Public Relations Committee

Report that inasmuch as it has not been possible to develop a realistic public relations program, no further funds appear indicated at this time.

It was determined not to participate in the Arizona Press Club Awards Program, inasmuch as there is no longer opportunity of this Association designating the category in which it shall participate. (Board concurs.)

Associate with the A. H. Robins Company "Community Service Award", it was determined to accept the nominations of Delbert L. Secrist, M.D. of Tucson (Pima County); Martin G. Fronske, M.D. of Flagstaff (Coconino County); W. Albert Brewer, M.D. of Phoenix (Maricopa County); and Paul B. Jarrett, M.D. of Phoenix (Maricopa County). (Board concurs.)

The President appointed an ad hoc committee comprising James T. O'Neil, M.D. of Casa Grande to serve as Chairman, Deward G. Moody, M.D. of Nogales and Arnold H. Dysterheft, M.D. of McNary to review the background of each of these candidates and submit their recommenda-

tion. (Board concurs therein.)

Publishing Committee

The Editor-in-Chief recommends for consideration the publication of an editorial suggesting that this Association either arrange for or sponsor a mid-winter clinical session. Annually, such sessions are now conducted by the Cancer, Heart and College of Surgeons groups, and also one conducted by the Psychiatrists. The Executive Committee approves such suggestion but with skepticism as to how it is to be accomplished. It definitely feels that the Association cannot assume the responsibility of arranging for and conducting such joint endeavor at this time; it certainly would be willing to sponsor such a meeting but does not see how it can assume the obligation either to run it or in any way to finance it. (The Board determined that the Editor-in-Chief shall make inquiries as to the feasibility of such joint endeavor and report back.)

The matter of editorial censorship of articles or portions thereof in *Arizona Medicine* was discussed. The circumstance under which such censorship was recently exerted was reviewed. Further, regarding editorials appearing in the Journal, it was stated that hereafter there shall appear at the bottom of the editorial page indication that the editorials are not the official expression of opinion of the Association.

Attention was directed to the reduction in national advertising which has affected all medical journals with a comparable reduction in reading material.

Scientific Assembly Committee

Recommends staggered membership terms rather than annual appointment as now provided in the By-Laws. Under the present set-up it is difficult for this Committee to develop plans for the "Diamond Jubilee" and schedule advance "Annual Meetings" with a change of Committee membership each year. It has been suggested that the Committee prepare a resolution setting forth an amendment to the By-Laws providing for staggered terms of the membership, and further provide for a regular chairman who will be a co-chairman with the President-elect in the future.

Merck Sharp & Dohme

Merck Sharp & Dohme proposed to underwrite the expense of a speaker at State medical meetings, which is referred to the Scientific Assembly Committee for its future consideration.

Fifty-Year Club Membership

It is recommended that the Board rescind its previous action granting Fifty-Year Club membership to Harry L. Goss, M.D. It is reported that the doctor has not been in active practice for some time; however, if it is desirable, he could be elected to Associate membership. (The Board rescinds its previous action in this regard and elects Doctor Goss to Associate membership, effective January 1, 1961.)

The National Foundation

In accord with request of The National Foundation, Preston T. Brown, M.D. of Phoenix, Carl H. Gans, M.D. of Morenci and Donald K. Buffmire, M.D. of Phoenix are recommended nominees from which group the Foundation will select and appoint a member to serve on its State Scholarship Selection Committee. (Board concurs.)

1960 Medical Directory

Recommends that the Board of Medical Examiners of the State of Arizona be reimbursed to the extent of \$36.50 covering one-half the net cost of the publication, jointly, of the 1960 Medical Directory in accordance with previous agreement. (Board concurs.)

CBS Program

The Board directed that the Association write to the Columbia Broadcasting System deploring in the strongest terms its recent television program, especially as it presented the image of the Doctor of Medicine; however, complimenting it on its presentation of the more recent television program presenting a debate between Walter Reuther and Doctor Edward A. Annis.

Medic-Alert Foundation

The Board approved the Medic-Alert Foundation's program, providing various kinds of identification tags for persons with chronic illnesses whose illness may make them at any moment an emergency public charge, provided, however, on communication with AMA it is found it, too, supports such program.

MEDICARE CONTRACT

A new medicare contract, No. DA-49-192-MD-9, has been forwarded for execution by the Contracting Officer, Office for Dependents' Medical Care, Washington, to cover the period March 1, 1961, to and including February 28, 1962. This document has been reviewed by the Executive Secretary, Counsel and the Arizona Blue Shield Medical Service Plan, the Fiscal Ad-

ministrator, each expressing the view that it appears to be in order and in agreement with the existing contract. The Board directed that it be executed by the designated officers of the Association.

Lorel A. Stapley, M.D., Secretary
By Leslie B. Smith, M.D., President-elect
Acting Secretary

1960-61 ANNUAL REPORT OF THE BENEVOLENT AND LOAN FUND COMMITTEE

The Committee met three times during the year, dates as follows: March 3, 1960; July 28, 1960; and, October 23, 1960.

The most important business carried on during the year was the transfer of the funds and the administration of the funds to a Trust Account No. 120-03068, at the Valley National Bank Head Office.

Applications were received and considered to the number of fifteen (15).

Ten (10) applications were approved for a first year loan of \$12,900.

Repeat loans were approved to the value of \$3,000.

Thus, there are ten (10) loan recipients now in Medical School, total loans to date represent \$15,900.

As you can see from the above enumeration, more applicants desire assistance than can be cared for by the fund.

The fund on hand at the present time is the sum of \$33,000, of which only \$6,107.62 is available for loans.

It is felt that reserve funds should be retained on account to protect those students who have received loans as underclassmen and to see them through their final years of Medical School.

In view of the apparent need for assistance of this type, it appears desirable to increase the funds available to the Benevolent and Loan Fund Committee if possible.

a. By increasing the dues from \$5.00 to \$10.00 per member each year for the specific purpose of increasing the loan.

b. By diverting some portion of the funds allotted to AMEF to this purpose.

Respectfully submitted,

Preston T. Brown, M.D.
Chairman — Benevolent and Loan Fund
Committee

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STUDY 2 Lubowe, I. I.:
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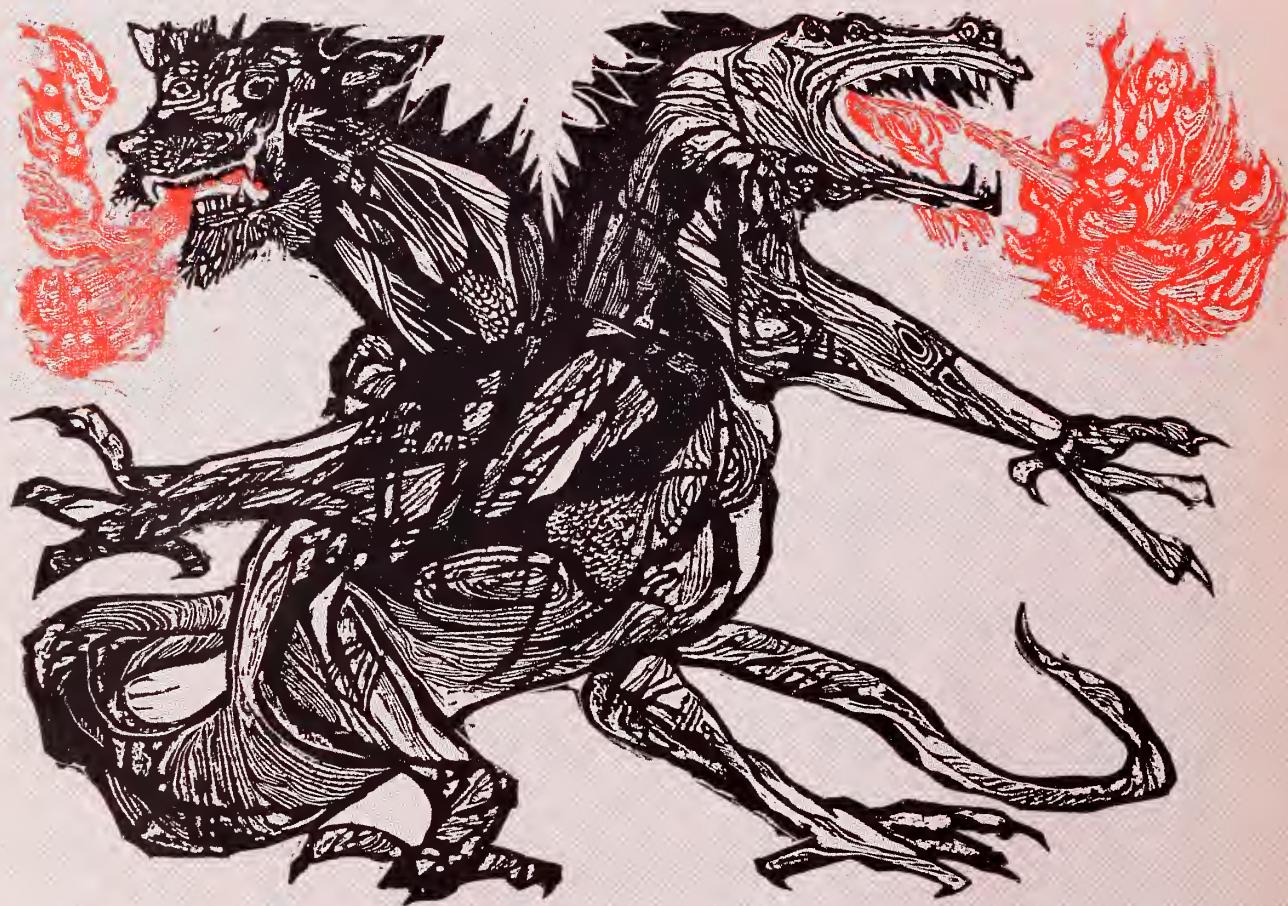
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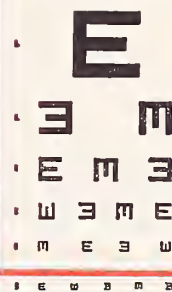


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Fluoride Osteosclerosis

James D. Nauman, M.D.

In spite of a thorough knowledge of the dental manifestations of fluorosis on the part of our dental colleagues, many cases of skeletal fluorosis have been overlooked and misdiagnosed by physicians in Arizona. A knowledge of the roentgenological appearances of skeletal fluorosis together with an amateur interest in geology has led Dr. Nauman, after a rather superficial search, to the discovery of a dozen cases of this condition. It is of interest that most of these patients are railroad workers and that their skeletal condition can, in all probability, be traced directly to their water supply. To our knowledge, this factor is not taken into consideration by the railroad company in the hiring of workers. It would be of interest to know whether the factors involved in causing the skeletal changes of fluorosis should not be considered in the medico-legal aspects of workmen's compensation for injury and disability. The advisability of evaluating the water supply of the areas of residence of railroad employees should be considered.

It is hoped to institute, in the near future, a much more thorough search for other cases of this condition, and a more elaborate report is anticipated.

While changes in the dental enamel resulting from the prolonged ingestion of high-fluoride water have been extensively investigated and publicized, the effects on the skeletal system of protracted fluoride exposure have received relatively little attention. In the 1930's roentgenographic studies of residents of regions in Morocco having a high concentration of fluoride in the water supply, and of Danish factory workers industrially exposed to cryolite dust (Na_3AlF_6) suggested a relationship between fluorine toxicity and osteopetrosis (Albers-Schonberg's disease(1,2). Bishop(3) in 1936 and Roholm(4), in his monograph on fluoride intoxication in 1937, showed that the skeletal changes of fluorosis are characteristic, and distinguishable from the "marble bones" of osteopetrosis.

More recent studies(5,6) of population groups

in geographic regions with high-fluoride domestic waters have shown that certain individuals consuming water with a fluoride content of 4 parts per million or more for many years will show osseous changes comparable to those described by Roholm. In 1949, a bulletin of the University of Arizona, Department of Agriculture,(7) listed 118 wells in Arizona having a fluoride concentration of 4.0 ppm or greater. Consequently, a relatively high incidence of fluoride osteosclerosis in this state might be anticipated.

The following case is selected for presentation from a group currently being investigated.

A 77-year-old white male, a retired boiler-maker, had numerous hospital admissions over a 17 year period for diabetes mellitus, pulmonary

*Spanish translation prepared by the author.

tuberculosis, and cardiac decompensation. He had lived in Arizona for 36 years, in a community having a water supply containing 7.8 ppm fluorine. There were no significant findings in the history or physical examination referable to the musculoskeletal system.

Roentgenographically, there was a symmetrical, diffuse increase in osseous density, involving chiefly the axial skeleton, Figure 1(a), with relative sparing of the skull and extremities. Trabeculae were seen to be coarse and blurred, but not obliterated. While the extremities showed no appreciable trabecular alteration, there was periosteal overgrowth at sites of tendon insertion, particularly about the elbows and knees. There was no expansion or bowing of the affected bones. Ossification of the sacrospinous and sacrotuberous ligaments was present Figure 1(b). The initial radiologic diagnosis was Paget's disease. Hematologic studies on several occasions showed nothing to suggest a blood dyscrasia, and there was no evidence of neoplasm.

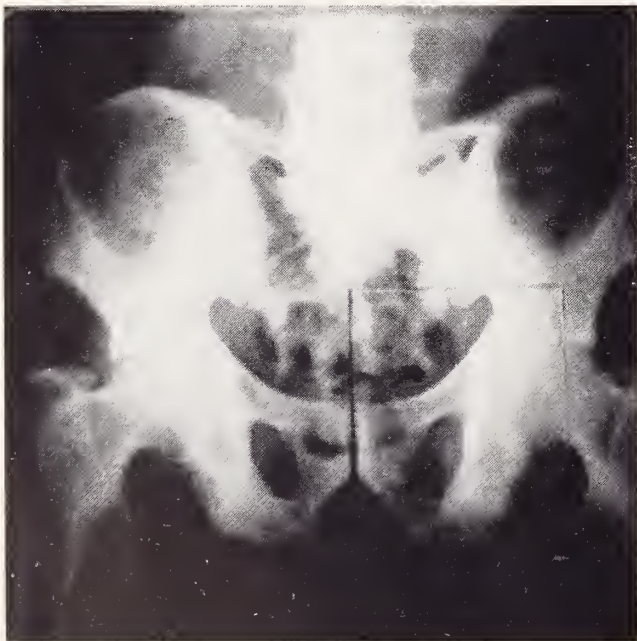


Fig. 1(a) A-P view of the pelvis.

COMMENT: The patient had no symptoms attributable to the osseous changes. Although chronic fluoride intoxication was at one time implicated in the etiology of various gastrointestinal, neurological and cutaneous disturbances, more recent surveys(5,6) have shown no definite systemic effects resulting from ingestion of high-fluoride drinking water other than mottling

of dental enamel and structural alteration of bone. The skeletal findings are felt to have no relation to the pulmonary tuberculosis in this case, since sclerosis of this type is not a feature of tuberculous disease.



Fig. 1(b) Enlarged view of area outlined on Fig. 1(a). Note ossification of sacro-tuberous and sacro-spinous ligaments. The ilio-lumbar ligaments are ossified, but this is not pathognomonic of fluorosis.

DISCUSSION:

1. Roentgen Features: The pelvis, ribs and vertebral column are the sites of greatest involvement in fluoride osteosclerosis. Trabeculae show roughening and blurring, but remain distinguishable until advanced stages of involvement, when they may fuse together. Affected bones show a diffuse, symmetrical sclerosis without significant alteration of their shape. There is no evidence of bone destruction or tendency toward pathologic fracture. Osteosclerosis usually does not involve the calvarium or extremities, but irregular periosteal thickening at tendon insertions occurs, in some cases resembling large osteophytes. An interesting finding in fluoride osteosclerosis which appears to be pathognomonic is the ossification of the sacrospinous and sacrotuberous ligaments, (Figure 1b). Usually only the distal insertions of these ligaments calcify, but at times the entire ligament is involved.

2: Differential Diagnosis: It has seemed worthwhile to call attention to this entity principally because it may easily be confused with other more familiar causes of osteosclerosis. Among these are osteoblastic metastases, Albers-Schonberg's disease, Paget's disease, and myelosclerosis. Diffuse, symmetrical increase in density of the axial skeleton with thickened, blurred trabeculae and ossification of the pelvic ligaments should suggest the correct diagnosis. The absence of anemia and splenomegaly, normal acid and alkaline phosphatase levels in the blood, and the knowledge of exposure to water high in fluoride content are helpful corroborative factors.

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EDITOR'S NOTE.

Dr. Nauman would appreciate very much if physicians in the Southwest or in Sonora, would be so kind as to notify him of the occurrence of similar cases. He would further appreciate the opportunity of seeing roentgenograms of such cases. Your cooperation is respectfully requested.

A.J.B.

SEATO FELLOWSHIPS

The Southeast Asia Treaty Organization for the 5th consecutive year is offering several postdoctoral research fellowships to established scholars of the member states to encourage study and research on the problems of southeast Asia and the southwest Pacific.

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Osteoesclerosis Por Fluoruro

Dr. James D. Nauman

AUNQUE las alteraciones de los dientes debidas a la ingestión prolongada de agua con concentración alta de fluoruro son bien familiares, los efectos óseos de exposición alargada a fluoruro han recibido relativamente poca atención. Hace ya algunos treinta años, estudios radiológicos de los residentes en ciertas regiones de Marruecos con concentraciones altas de fluoruro en los abastecimientos de agua, y de obreros en fábricas dinamarquesas expuestos industrialmente a polvos de criolita (Na_3AlF_6), sugirieron relación entre intoxicación por flúor y la osteopetrosis (enfermedad de Albers-Schönberg(1, 2). Bishop(3) en 1936 y Roholm(4) el año siguiente demostraron que las alteraciones esqueléticas de la fluorosis con características y distintas de las de la osteopetrosis.

Estudios más recientes(5,6) han indicado que ciertos individuos tomando por muchos años agua conteniendo 4 o más partes por millón de fluoruro manifestarán alteraciones óseas semejantes a las que describió Roholm. En 1949, una comunicación de la Universidad de Arizona, Departamento de Agricultura, dice de 118 pozos en el estado de Arizona con concentración de fluoruro de 4.0 ppm. o más. Por consiguiente, una incidencia relativamente elevada de la osteoe-

sclerosis por fluoruro sea anticipada en este estado.

La radiografía aquí presentada es la pelvis de un sujeto de 77 años, admitido en el hospital repetidas veces durante un período de 17 años con diabetes mellitus, tuberculosis, y descompensación del corazón. Había morado en Arizona por 36 años, en pueblo con abastecimiento de agua conteniendo fluoruro en 7.8 ppm. No presentaba síntomas o señales pertinentes al sistema muculoesquelético.

Exámenes radiográficos demostraban aumento difundido y simétrico de la densidad ósea, afectando principalmente la columna vertebral, tórax y pelvis. (Véase Fig. 1a). Trabéculas aparecían gruesas y confusas, pero no se habían fundido. Aunque las extremidades no mostraban alteraciones de las trabéculas, se podía ver espesamiento del periostio en sitios donde se insertan los tendones, en particular cerca de los codos y las rodillas. No se veían ensanche, combadura u otras deformidades de los huesos afectados. Osi-ficación de los ligamentos sacroespinosos y sacrotuberosos se presentaba.

La impresión inicial fué la enfermedad de Fl-

get. Estudios hemotológicos hechos en varias ocasiones no indicaban discrasia de la sangre, y no había señal de lesión neoplástica.

El enfermo jamás demostró síntomas relativas a las alteraciones óseas. Aunque intoxicación crónica por flúor en tiempos pasados se creía causa de varias enfermedades gastrointestinales, neurológicas, y cutáneas, estudios recientes no han comprobado efectos sistémicos definidos resultantes de la ingestión de agua con concentración elevada de fluoruro, más que manchando de los dientes y alteraciones de los huesos. El enfermo padecía de la tuberculosis pulmonar, pero esclerosis difundida como ésta no es característica de infección tuberculosa.

DISCUSIÓN:

1. Hallazgos radiográficos: La pelvis, las costillas, y la columna vertebral son las partes mas afectadas en la osteoesclerosis fluoruro. Las trabéculas son ásperas y confusas, pero quedan discernibles hasta las etapas mas adelantadas cuando se fundieran. Los huesos afectados suelen demostrar esclerosis simétrica y difundida sin combadura u otras alteraciones significativas de sus formas. No hay destrucción de los huesos o tendencia a fractura patológica. La osteoescler-

osis por lo general no suele envolver la calavera o las extremidades, aunque hay espesura irregular del periostio en las inserciones de ciertos tendones, en algunos sujetos semejando osteofitas grandes. Hallazgo excepcionalmente interesante de esta entidad, aparentemente patognomónico, es la calcificación u osificación de los ligamentos sacroespinosos y sacrotuberosos. (Véase Fig. 1b) Por lo general, solamente las inserciones periferales de esos ligamentos calcifican, pero a veces la estructura entera es afectada.

1. Consideraciones diferenciales: Ha parecido bien mencionar esta entidad principalmente porque puede ser confundida con otras causas más familiares de la osteoesclerosis, entre ellas las metastasis osteoblásticas, la enfermedad de Albers-Schönberg, la mieloesclerosis y la enfermedad de Paget. El aumento de densidad del esqueleto axil con trabéculas espesas y confusas; la osificación o calcificación de los ligamentos pélvicos; la ausencia de anemia y de engrosamiento del bazo; concentraciones normales de fosfatasas acídicas y alcalinas en la sangre; e historia de bebiendo agua con un contenido elevado de fluoruro todos sirven de factores corroborativos útiles.

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(from AMA's publication, "The Cost of Medical Care")

The Treatment Of Poisonous Bites And Stings

II. Arizona Coral Snake And Gila Monster Bite

Charles H. Lowe, Jr., Ph.D.

Henry P. Limbacher, M.D.

This second of a series of reviews on the proper treatment of bites by small desert animals is again well done. It clears some of the superstitions in regard to the Gila monster. It is a good addition to the previous article on the bites of the desert rattler as it appeared in the July, 1959 issue, and it is again a strong warning against the overuse of cryotherapy.

THIS IS the second in a series of reports on treatments for poisonous animal bites and stings prepared by a special committee of the Pima County Medical Society.(1) While a large and growing literature is available on biological and medical aspects of the venoms and bites of rattlesnakes, this is not the case for the Gila monster (*Heloderma suspectum*) nor for the Arizona Coral Snake (*Micruroides euryxanthus*). In fact, for *Micruroides* there is but a single paper on the venom and its effect on living animal systems.(2)

GILA MONSTER

The Mexican beaded lizard (*Heloderma horridum*) and the Gila monster (*H. suspectum*) comprise the unique lizard family Helodermatidae. These are the only poisonous lizards in the world. As in the case of the poisonous snakes, the venom glands of *Heloderma* are modified salivary glands. However, while snake venom is produced by salivary glands in the upper jaw, the Gila monster and Mexican Beaded Lizard produce the venom in salivary glands in the

lower jaw as does the poisonous shrew (*Blarina brevicauda*).

The Mexican Beaded Lizard is the larger of the two species, reaching a little less than three feet in total length. It is confined to Mexico where it occurs in the Pacific drainage from Chiapas northward into southern Sonora. The Gila Monster occurs in Arizona, extreme southwestern Utah and southwestern New Mexico, and in Sonora. It is primarily a desert species.

Several species of harmless lizards are confused with the Gila monster. One of these is the diurnal Chuckwalla (*Sauromalus obesus*), a large desert lizard reaching 16-17 inches in total length. Another is the Banded Gecko (*Coleonyx variegatus*), a small nocturnal lizard of 5-6 inches, often thought to be a baby Gila monster.

There is so much misinformation that has appeared in the lay press concerning the Gila monster that it is difficult for many to separate fact from fiction. Contrary to popular beliefs,

the Gila monster (1) has a normal excretory process with the usual posterior anus, (2) does *not* have a "poisonous breath," (3) does *not* have to turn on its back before introducing venom into a bitten object, (4) does have grooved teeth in the lower jaw, each of which is capable of serving as a channel for instant delivery of venom from the venom glands, and (5) does *not* attack persons encountered in the field. The Gila monster is a small, retiring animal (rarely over 20 inches total length) that is frightened upon the close approach of a larger one such as man.

While there is disagreement among the opinions recorded over the years by investigators as to whether the modified salivary secretions of *Heloderma* are harmfully poisonous or not, it is now clearly established that (1) the Gila monster is capable of quickly delivering venom into the tissue even in a superficial bite involving but one or two seconds duration, and (2) the resulting symptoms may be those of considerable gravity. The bite of a Gila monster creates a potentially dangerous situation.

The Hazard

It appears that there remains no uncontestable death directly attributable solely to the bite of a Gila Monster. Most of the few deaths that have been reported are known to have been complicated by debility, alcoholism, drug addiction, etc. It is to be fully appreciated, nevertheless, that Gila Monster bite has been involved in these deaths. Contrary to newsprint, there is no medical record of any healthy individual succumbing to the effects of the bite of a Gila monster. From the varied symptoms that have been produced (see below), it is naturally conceivable that a bite from a Gila monster could kill a "healthy" person, particularly a small child, although it is to be noted that this has not yet been demonstrated beyond reasonable doubt.

The Bite

Biting a human is a *natural defensive mechanism* on the part of the Gila monster. Bites from Gila monsters have been relatively rare. They have usually occurred after uncautious handling or teasing, of the lizards, and often have been the result of unfamiliarity with the species. The majority of the bites have occurred on parts of

the extremities, primarily on the fingers. Accidents with captured specimens are known which have involved bites on the abdomen and buttock but without grave symptoms.

Minor bites have usually involved but one or a few teeth (usually front teeth) and the engagement of teeth for a brief duration of one or more seconds. Such bites occasionally have been through a cloth sack.

More serious bites have occurred when the lizard has secured a firm hold with its teeth and jaws, often for several minutes. An intermittent "biting" action of the jaws may ensue once the Gila monster has grasped an object in its mouth.

Factors Affecting Gravity of the Bite

1. The quantity of venom that is introduced.
2. The number of teeth that are engaged in the flesh of the victim.
3. The length of time the teeth are engaged.
4. The site of the bite (body or extremity) and whether or not the site is protected by clothing.
5. The physical condition and size of the lizard.
6. The extent of irritation of the lizard prior to the bite.
7. The size, vigor, and health of the victim.
8. The victim's individual susceptibility.
9. The psychological condition of the victim.
10. The physical exertion of the victim following the bite.
11. The extent of bleeding from the bite.
12. The previous first aid measures performed.

Symptoms Following Bites

Gila monster bites have been followed by symptoms ranging from slight pain to those of considerable gravity. The symptoms following minor bites usually consist of local pain (often slight) considerably prolonged bleeding at the site of the bite, and, occasionally, faintness with or without nausea.

More serious cases may elicit such symptoms as initial shock, severe pain, anxiety, profuse bleeding, rapid swelling, severe edema, nausea and vomiting, and perspiration. In addition, cyanosis, fever, swelling of the tongue, dyspnea, dysphonia, and paralysis, have been reported.

Treatment

There is no antivenin commercially available at the present time, and there is little likelihood that one will be produced, at least in the near future. It is suggested that Gila monster bites be treated with the same thorough care as rattlesnake bites. It is to be reiterated that a bite of a Gila monster presents a potentially dangerous situation.

The following procedure is recommended:

1. *Disengage the jaws as promptly as possible*, even at the expense of some laceration. The jaws are frequently opened only with considerable difficulty if mechanical means (e.g., pliers) are employed. Pouring alcohol (rubbing, ethyl, whiskey, etc.), chloroform, or gasoline into a Gila monster's mouth is an effective way to cause the lizard to loosen its grip. This may also be accompanied by the application of the flame from a match or cigarette lighter to the under surface of the lizard's jaw or neck.

2. If lacerations have resulted from the bite, do not incise the wound (do not excise). However, if only puncture marks remain, make an incision at each site where a tooth penetrated. The toxin from a Gila monster does not spread as rapidly or effectively as the injected toxin from a rattlesnake. The incisions should be made directly over the wounds.

3. Apply suction to the wounds for at least thirty minutes.

4. Application of a mild constricting band is also indicated to discourage the lymphatic return to the regional lymph nodes. Follow tourniquet procedures as given under treatment for rattlesnake bite.

5. The patient should be kept quiet and should drink as much water as possible.

6. *Avoid drastic lowering of the tissue temperature* resulting from immersion of an extremity in iced water for longer than approximately one hour, or application of any other similarly severe refrigeration treatment. There are no contraindications to the use of an ice bag, however, for any length of time.

7. General supportive measures.

The art of medicine plays an important role in the treating of Gila monster bites. Place emphasis on combating CNS symptomatology. The use of Metrazol has been recommended.

Guard against tetanus and gas gangrene (tetanus-gas gangrene antitoxin), and pathogenic organisms (antibiotics).

Anaphylactic reaction has not been observed in the case of Gila monster bite. ACTH or Cortisone may be used; the effect of corticosteroids is on metabolic response to shock, not on the venom itself.

Cases resulting from Gila monster bites rarely come to the attention of the physician. In view of the scarcity of good clinical information for such cases, the physician is asked to make a special effort to record details concerning the bite, symptomatology, treatment and response of such patients which he may have occasion to observe.

ARIZONA CORAL SNAKE

The Coral snakes, cobras, and their relatives comprise the family Elapidae. Two species of coral snakes occur in the United States. The larger Eastern Coral Snake reaches a total length of just under four feet. The smaller Arizona Coral Snake is seldom seen over 20 inches in length; most of the individuals found are under 15 inches. The species occurs in Arizona, extreme southwestern New Mexico and in Sonora, Mexico.

Some diagnostic features of the Arizona Coral Snake are provided by its color pattern. It is the only species in Arizona with red, cream (or white) and black bands completely encircling the body, with the red and cream bands adjacent. The simplest diagnostic feature, however, is the color of the tip of the snout which is black. The tips of the snouts of other species of snakes which are often confused with the coral snake are various colors, but are not black.

The Venom and Hazard

To our knowledge, there has never been a

case of a person bitten by the Arizona Coral Snake. It is timid and has not bitten persons which have actually handled it freely with or without knowledge that it was a poisonous snake. The species is secretive and primarily active on the surface at night. The probability of being bitten appears to be very low, even when the snake is handled without caution. Nevertheless, such handling of any coral snake is not to be recommended.

Neurotoxins produce a curare-like effect on the myoneuro-junction, interfere with nerve trunk conduction, or act directly on the central nervous system. They may produce nausea, vomiting and rarely result in bulbar paralysis.

The fang marks may be difficult to locate at the site of the bite; it has been suggested that bites of this species (as well as others) may have occurred in humans found dead on the desert without ascertainable cause. In any event, the Arizona Coral Snake should be considered a potentially dangerous animal.

TREATMENT

No antivenin is available in this country for coral snake envenomation and no procedure for treatment of the bite of the Arizona Coral snake has been earlier recommended. In fact, in the absence of specific antivenin therapy, a clear-cut and effective procedure for treating coral snake envenomation is actually wanting, i.e., short of removing a bitten appendage, a practice which has been carried out after bites by elapids.

The art of medicine in evaluating the patient, with emphasis placed on combating CNS symptomatology, is critical. In addition to local measures such as incision and suction and the application of ice packs over large areas, the following general supportive measures in snakebite treatment should also be considered by the attending physician during close and continued observation: blood transfusions, fibrinogen, glucose-saline infusions, calcium, carbolic soap solution, corticosteroids, vasopressors, fluids and electrolytes, enema, urinalysis, tetanus antitoxin, gas-gangrene antitoxin, antibiotics, and (possibly) antihistamines.

A ligature, if applied tightly and *within a few*

minutes, may be of some value in elapid poisoning. Incision and suction, even when immediately applied, may be of little avail.

Immediate local injection of an aqueous soap solution (watery solution of carbolic soap) has proved effective in combating cobra and krait venoms.(3, 4) It may also retard coral snake venom thus postponing the effect of its action. There is no known antidote other than antivenin for neutralizing any of the elapid snake venoms.

Warning: Direct application of iced water or ice to human tissues is acceptable only when rendered strictly as a temporary first aid measure, in which it may reduce local pain and reactions before arrival at a hospital.

The method of ice therapy (cryotherapy) for treating the bites of poisonous animals was started by Crum in 1906.(5) It is important to make the distinction between the dangerous immersion of a part of the body in ice water and/or crushed ice for a long period, and the medically safe use of ice packs, i.e., the positioning of a cloth between the ice and the patient's tissue.

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The Usefulness of Culdoscopy in Gynecologic Diagnosis

William J. Dignam, M.D.

The use of culdoscopy as a diagnostic procedure on an outpatient basis in a series of 110 gynecological patients is described, including detailed technique. The author's series represents: 1) infertility patients, 2) those patients with hirsutism and amenorrhea, 3) suspected ectopic pregnancy, 4) patients with unexplained pelvic pain, and 5) miscellaneous; and the findings on culdoscopic examination are presented for each group.

CULDOSCOPY provides an interesting and in some instances, a very helpful method of investigating a gynecologic patient. In our hands it has found its greatest usefulness in the investigation of infertility patients. It has been employed, also, in the investigation of patients with possible ectopic pregnancy, patients with unexplained pelvic pain, patients with equivocal ovarian masses, and patients with ovarian dysfunction, such as the Stein Leventhal Syndrome. In our hands it is used almost routinely on an outpatient basis and this has proven eminently satisfactory. It is not a major inconvenience for the patient in regard to discomfort, time, or expense, and on occasion it has proven to be a decided improvement over the bimanual examination.

Prior to the procedure all patients have a careful bimanual examination to be certain that the cul-de-sac is free of obstruction. Our patients come to the outpatient department at noon and do not have any lunch. They are requested to take an enema at home before coming to the outpatient department. Just prior to the procedure they empty their bladders and each patient receives 100 mgm of Demerol as premedication.

For the actual performance of the procedure we employ a standard operating table with the foot piece lowered to a 90° angle with the main part of the operating table and a shelf attached

to the foot piece approximately 8 inches below the surface of the operating table. The patient is requested to kneel on the shelf so fixed, and to spread her knees so that she can maintain her position easily for a period of 20 minutes or so. The positioning of the patient is one of the most important parts of the procedure and it is important that shoulder braces be attached to the table close enough to the foot piece so that the patient's thighs form somewhat less than a 90° angle with her lower legs. Then the table is placed in slight Trendelenburg position and raised to its maximum height. This permits the operator to perform the procedure in a standing position and with only shoulder braces restraining the patient, she is able to change her position during the procedure in order to bring various structures into view.

The perineum, vulvar area, and upper thighs are prepared with 1% Zephiran solution. A sterile drape is then applied. Exposure of the posterior fornix is obtained by means of a Haney retractor against the posterior vaginal wall and a single tooth tenaculum on the posterior lip of the cervix. This retractor produces moderate discomfort for the patient but since traction continues for only a very brief period of time she is easily able to tolerate it if proper explanation is made to her. The posterior fornix is prepared with Zephiran solution and anesthetized with 1% Xylocaine.

The administration of the local anesthetic is another one of the critical points of the proce-

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ture. The posterior fornix is a relatively insensitive area and requires very little anesthetic to make the procedure tolerable for the patient. If too much material is injected, particularly if the material is injected beneath the vaginal mucosa, it will elevate the cul-de-sac peritoneum away from the vaginal mucosa so that the trocar will not penetrate the peritoncum. Therefore, usually about 3 cc of 1% Xylocaine is employed and an effort is made to inject it into the vaginal mucosa and not beneath that mucosa. Three or four wheals are raised in a triangle or diamond shape around the spot where the trocar will be placed.

The instrument which I have employed is the Decker Culdoscope. The sheath for the trocar, which is part of this instrument, has a small channel down one side through which gas may flow into the peritoneal cavity of the patient. This, too, is a very important feature of this procedure. The major complaints which our patients have voiced have been due to the pneumoperitoneum following the procedure. The procedure, itself, has been attended by very little discomfort and the patients have had no complaints on this score. However, if a great deal of air enters the peritoneal cavity the patients are decidedly uncomfortable when they assume the erect posture. If this is severe, nausea and vomiting may result and the air may not be absorbed for a number of days following the procedure. Therefore, I think it important to use carbon dioxide and to take some precaution to be sure that the carbon dioxide, and not air, enters the peritoneal cavity. For this purpose we have employed an ordinary small tank of carbon dioxide and have filled a rubber bag reservoir with the gas before beginning the procedure. Then the tank can be shut off and gas from the bag flows into the abdomen under the negative intra-abdominal pressure. If the Trendelenburg position of the patient is not too steep the volume of gas which goes into the peritoneal cavity will not be large and the postoperative discomfort will be reduced.

With the patient in Trendelenburg position the trocar for the culdoscope is placed against the most dependent portion of the posterior fornix in the midline and moderate pressure results in its penetrating the vaginal mucosa and peritoneum and entering the peritoneal cavity. Every person who has employed the culdoscope has

encountered some patients in whom penetration of the peritoneal cavity was difficult or impossible. In our hands the most common reasons for failures of this sort have been (1) too much local anesthetic material, (2) the trocar being off the midline, (3) the patient being too obese.

With the culdoscope being in the peritoneal cavity one is ready to observe the pelvic organs. Experience with the procedure and with the instrument are very helpful in interpreting what is seen. Structures are not magnified unless the instrument is very close to the structure being visualized. One is able to move the instrument around in the pelvis quite freely without any discomfort to the patient. When local anesthesia is employed the patient is able to change her position easily upon request and this aids in bringing the various structures into view.

In order that we may gain some concrete impression of the usefulness of culdoscopy in our hands I have reviewed a recent group of 110 patients upon whom this procedure was performed. Many of these patients were seen in consultation for other physicians and some of them have been investigated recently so that I do not have accurate results of treatment in some cases. Therefore, I shall not attempt to evaluate the procedure in terms of the discovery of remediable lesions but will confine my remarks to the findings observed at culdoscopy and perhaps make some general suggestions regarding treatment.

Infertility Patients: The first group of patients whom I should like to discuss is a group of 50 infertility patients. Some authorities feel that when an infertile couple has had a thorough investigation and no obvious cause for the infertility is discovered the woman should be subjected to exploratory laparotomy. I do not agree with this feeling but I do think that culdoscopy will provide much of the same information as one might acquire at laparotomy and at times unsuspected pathology is discovered in this manner. Culdoscopy is also of value in determining the extent of pathologic changes which have been noted by other means of investigation such as hysterosalpingogram. In this manner one may gain some impression of the likelihood of success of proposed treatment. As can be seen in the

accompanying table 50 infertility patients are included in the group reported here.

INFERTILITY

Failed	6
Inflammation	17
Normal	15
Sclerotic ovaries	7
Endometriosis	4
Fibroids	1
	<hr/>
	50

In six of these patients we were unable to complete the culdoscopy. Inflammatory changes were noted in seventeen patients. These varied from a few minor adhesions to rather extensive involvement of both tubes. In eleven of these seventeen patients the prescence of adhesions had not been suspected prior to culdoscopy. The sclerotic ovaries mentioned in this table include three patients with very small fibrotic appearing ovaries and four patients with ovaries similar to those described in the Stein Leventhal Syndrome. Of the four patients with endometriosis only one patient had a preoperative diagnosis of endometriosis.

Opinion concerning the value of surgical treatment of post-inflammatory changes in infertility patients varies widely in different areas. We have found culdoscopy valuable in deciding which patients were most likely to achieve success following such surgery. Several patients have living babies following such surgery and are, of course, extremely grateful. On the other hand, at least four patients have been told that such surgery was very unlikely to be successful and we feel that they have been spared a very likely unsuccessful operation.

Patients with Hirsutism and Amenorrhea: We have been particularly interested in this group of patients and have had the opportunity to study a fair number of them. Culdoscopy has been quite helpful in deciding between adrenal and ovarian sources of these difficulties. It is my feeling, like that of many others working in this field, that we frequently see patients who have both adrenal and ovarian dysfunction. I believe that as more patients with these symptoms are being studied earlier in the course of their illness we are seeing patients with mild to moderate ovarian changes which would be more marked when the symptoms had been present for a greater length of time.

As can be seen in the accompanying table the present group of patients includes 31 patients with the symptoms of hirsutism and amenorrhea.

HIRSUTISM - AMENORRHEA

Failed	3
Diffuse ovarian changes	17
Normal	11
	<hr/>
	31

Seventeen of the patients so studied had diffuse changes in the ovaries and eleven had completely normal ovaries. The ovarian changes varied from moderately enlarged ovaries with a thick white capsule and many small cysts protruding under the capsule to very large ovaries with the full blown picture described in the Stein Leventhal Syndrome.

Regarding the treatment of these patients it is my feeling that if the ovarian changes are marked, and infertility is important to the patient, a wedge resection of the ovaries should be done. Many of our patients were single or not interested in pregnancy. In such patients and in patients in whom the ovarian changes are not marked a trial of Cortisone may be indicated, particularly if the 17 ketosteroids are elevated. Both the surgical and the medical methods of management have been quite successful in treating the amenorrhea and the infertility when it was an issue. I have not yet been impressed with the effectiveness in relief of hirsutism from either method of management.

Patients with a history suggestive of Ectopic Pregnancy: Patients who are obviously acutely ill and have a history suggestive of ectopic pregnancy are no real problem to any of us. They need and receive immediate operation. However, there is a large group of patients that is quite a problem to all of us. These are the patients who have mild to moderate symptoms which are somewhat suggestive of ectopic pregnancy. Culdoscopy provides a means of resolving this issue promptly and therefore has been quite helpful to us in these instances. As can be seen in the accompanying table it was employed for this purpose in fourteen of the patients being reported here.

In two of these patients culdoscopy could not be completed. One of them was given a general

anesthetic and a colpotomy was performed. A tubal pregnancy was found and removed through that incision. The other patient was given a general anesthetic and examination at that time showed no enlargement in either adnexal area. A curettage was performed and produced secretory endometrium. No further procedures were carried out and the patient remained well. Of the three patients with intrauterine pregnancies all have continued successfully in their pregnancies and have had living children. Of the patients with inflammatory disease two were apparently of a chronic nature and nothing further was done. One was an acute salpingitis which was treated conservatively and the patient recovered successfully. The fourth patient was a patient with an appendiceal abscess which was recognized at culdoscopy. This was treated surgically and this patient has also done well.

ECTOPIC PREGNANCY

Failed	2
Normal	4
Inflammation	4
Intrauterine pregnancy	3
Ectopic pregnancy	1
	<hr/>
	14

Patients with Pelvic Pain: We are all frequently puzzled by patients who complain of pain in the pelvic area for which we can find no adequate explanation. When the pain has continued for a long period of time and seems to be located in the genital organs we have employed culdoscopy to help decide about these patients. As can be seen in the accompanying table we have employed it for this reason in twelve patients. In seven of the patients our pre-operative impression of no demonstrable gynecologic disease was confirmed. Four of the patients had postinflammatory adhesions. One patient had a bilateral carcinoma of the ovary. Neither ovary was enlarged to more than twice its normal size.

However, each was covered by many small papillary excrescences. This patient had a laparotomy and the diagnosis of carcinoma of the ovary was confirmed. She has remained well for eighteen months following this surgery.

PELVIC PAIN

Normal	7
Inflammation	4
Carcinoma of ovary	1
	<hr/>
	12

Miscellaneous Patients: Three other patients are included because they also had culdoscopy performed during this same period. As can be seen in the accompanying table one patient was thought to have an adnexal mass but at culdoscopy none could be demonstrated. One patient with clinical endometriosis had an attempted culdoscopy but this was not successful. One patient had metastatic carcinoma of the lungs and culdoscopy was performed in a search for the primary site. However, both ovaries were completely normal.

MISCELLANEOUS

Adnexal Mass	Normal
Endometriosis	Failed
Metastatic carcinoma	Normal

Summary (1) A description has been presented of culdoscopy as done in our hands under local anesthesia on an outpatient basis. (2) A group of 110 patients who have had culdoscopy have been presented. I have discussed the indications for this procedure in our experience and the findings noted in the patients so studied.

Fluoride Osteosclerosis*
by
James D. Nauman, M.D.
Tucson, Arizona

Half of the group health insurance policies issued during 1960 provided a comprehensive or supplementary type of major medical expense insurance coverage, the Health Insurance Institute reported.



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PATIENTS WITH IMPENDING CARDIAC DECOMPENSATION

In contrast to most of its congeners, ARISTOCORT is not contraindicated when edema is present or when cardiac decompensation impends.¹

PATIENTS WITH EMOTIONAL AND NERVOUS DISORDERS

Triamcinolone did not produce psychic disturbances or insomnia.²

PATIENTS WHOSE APPETITES SHOULD NOT BE STIMULATED

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PATIENTS WITH HYPERTENSION

There was no blood pressure increase in any patient treated for bronchial asthma, and in some, blood pressure fell. Of these, three had been hypertensive.⁴

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Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. In the treatment of allergic respiratory disorders, dosage should be individualized and kept at the lowest level needed to control symptoms. Dosage should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

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Cardiac Septal Defects

Dwight C. McGoon, M.D.

The most common septal defect is an atrial septal defect which may be combined with various anomalous pulmonary veins with alteration of the venous return. Ventricular septal defects are also quite common. Complicating defects associated with valvular deformities occur.

The mechanism of abnormal blood flow from left to right and right to left and the effects of various cardiac septal defects resulting in differing clinical disease states and operative indications are discussed.

The current surgical techniques of repair and the technical problems which remain are reviewed.

THE INTERIOR of the heart was to remain hidden from the direct inspection and manipulation of the surgeon until it became possible to provide the circulatory needs of the body somehow other than by the action of the heart itself. Now that it has become possible to operate within the heart as a result of new surgical techniques and equipment, a more nearly perfect understanding of the physiologic aspects of cardiovascular surgery is required to permit proper selection of patients for operation, proper preoperative and postoperative care and proper interpretation of the results of operation.

A classification of diseases of the heart which is oriented toward the physiologic aspects of cardiovascular surgery consists of two primary categories. The first includes all types of cardiac pathologic processes in which the disturbed physiologic relationships result from an abnormal communication between the pulmonary and systemic circulations. All remaining diseases can be included in the broad classification of mechanical disorders, which thus comprises all obstructive lesions, valvular insufficiencies and conditions limiting cardiac muscular function. A combination of these two primary categories of lesions may occur.

Most abnormal communications between the systemic and pulmonary circulations are of congenital origin and result from defective partitioning during embryonic development of the original single-chambered heart and circulatory system. However, communications between the two vascular systems may be on an acquired basis, as in the case of a traumatic ventricular septal defect or rupture of an aortic aneurysm into the pulmonary artery.

Some of these communications are located proximal to the atrioventricular valves and others are distal. In a physiologic orientation the former may be considered as venous communications between the pulmonary and systemic circulations and the latter as arterial communications. These two types of communications function quite differently hemodynamically, and therefore run different courses and are distinct in respect to the criteria of operability.

VENOUS INTERCIRCULATORY COMMUNICATIONS

The most common example of this type of lesion is the atrial septal defect, which may be combined with various degrees of anomalous connection of the pulmonary veins.

Since the pressure relationships between the pulmonary and systemic venous chambers, in-

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The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

cluding the atria, are not drastically different, an atrial septal defect ordinarily must become relatively large before it will cause clinically significant hemodynamic alteration. In the presence of such a large atrial septal defect, the pressures in the two atria are essentially equal. It is therefore of interest and much importance to inquire into the reasons for the direction and magnitude of any shunt across an atrial septal defect.

What are the determinants of the right and left atrial pressures in the normal heart, and what determines the shunt occurring through an atrial septal defect if the pressures in the two atria under this circumstance are approximately equal? Since the venous side of the circulation is largely passive and is predominantly controlled by the action of the ventricles, the clue to the answer of these questions is found in the characteristics of the ventricles into which each of the respective venous chambers empties. The left ventricle is a thick-walled, muscle-bound structure, the chief function of which is to pump blood under relatively high pressures. On the other hand, the right ventricle is more thin-walled, and can pump large volumes of blood under low pressure and against the low pulmonary vascular resistance.

In the presence of a large atrial septal defect, the atrial chambers functionally become a single chamber with a single head of pressure which empties into the two ventricles during diastole. The volume of blood which each ventricle will accept under these conditions, relative to the opposite ventricle, determines the volume and direction of the shunt through the septal defect. Before the development of increasing vascular resistance the right ventricle is much more distensible and will accept as much as three or four or more times the volume of blood during each diastole as will the thick-wall and less distensible left ventricle. Consequently, it will accept not only all the blood entering the right atrium from the cavae but also a large proportion of the blood entering the left atrium from the pulmonary veins. At this time closure of the defect results in the prompt return of cardiac function and pressure relationships to normal, and the operation is very well tolerated by the patient.

Any technic of closure of the defect which results in complete and permanent obliteration of the defect has proved to be a very safe and successful procedure in this type of patient. Consequently, the semi-open atrial-well technic or the open technics of repair with the aid of hypothermia or extracorporeal circulation have given generally excellent results. An operative mortality rate of less than 2 per cent in this group of cases of uncomplicated defects is attainable.

The presence of various types of partial anomalous pulmonary venous connection associated with the atrial septal defect may present increasingly complicated technical problems in successful repair. Prolonged exposure at the time of operation may be necessary, so that the ideal operative approach is that permitted by extracorporeal circulation. Particularly is this true in the various forms of total anomalous pulmonary venous connection. Again, in the absence of severe pulmonary vascular changes, rerouting of the venous return to the normal respective atria and ventricles results in immediate relief of the hemodynamic derangement which these lesions impose, and therefore these procedures are relatively well tolerated by the patient.

So far, the discussion has been limited to hemodynamically uncomplicated abnormal venous connection between the pulmonary and systemic circulations. The chief complicating feature which may develop in these patients is obstructive changes in the pulmonary vascular bed which are associated in some way with the greatly increased pulmonary blood flow. Through the years pulmonary vascular obstructive changes may increase progressively and the pulmonary vascular resistance may reach such a high point that a severe burden is imposed upon the heart and particularly the right ventricle. This sequel rarely occurs early in life, and ordinarily its onset is delayed until the third to even the seventh decade. The rate of appearance of these pulmonary vascular changes is subject to wide variation from patient to patient, but in general the changes develop much less rapidly in patients with abnormal connections between the venous side of the two circulations than in patients with abnormal connections between the arterial side.

In theory, any patient who has an abnormal communications between the pulmonary and systemic circulations, whether it is venous or arterial, should benefit by closure of that abnormal communication, so long as the predominant flow of blood through the defect results in a larger pulmonary blood flow than systemic, for if that is true, closure of the communication would result in a lower pressure within the pulmonary arterial tree, and therefore would relieve much of the increased work of the heart.

In practice, however, all patients who have an atrial septal defect with a greater pulmonary blood flow than a systemic flow are not necessarily safe candidates for operation. Whenever the clinical manifestations of right-heart failure have appeared, associated with a markedly elevated right atrial pressure and pulmonary arterial pressure caused by markedly increased pulmonary vascular resistance, the risk of surgical correction becomes progressively increased.

ARTERIAL INTERCIRCULATORY COMMUNICATIONS

Although ventricular septal defect, truncus arteriosus, aortopulmonary window and patent ductus arteriosus all are classic examples of arterial intercircuitary communications, the following remarks are confined to a consideration of the ventricular septal defect.

The direction and the magnitude of the shunt through a ventricular septal defect are directly related not only to the size of the defect but also to the relative vascular resistances of the two arterial systems. Initially, before the development of pulmonary vascular obstructive changes, the resistance to blood flow is very much less in the pulmonary circulation than it is in the arterial circulation, and consequently when the defect is large, a great shunting of blood from the systemic to the pulmonary arterial system occurs. This large volume of shunted blood imposes a tremendous overload on the left ventricle, resulting in left ventricular enlargement and often failure. Infants and children are therefore susceptible to the development of recurrent bouts to heart failure, pulmonary edema and pneumonia.

As is true when an atrial septal defect is present, in the presence of a ventricular septal defect there will be progressive development of obstructive changes in the peripheral pulmonary vasculature. When the defect is relatively large in relation to the cross-sectional diameter of the aorta, there is much more rapid development of these pulmonary vascular changes than there is in patients who have an atrial septal defect. Thus, severe pulmonary hypertension is common even in the first decade of life in patients who have a ventricular septal defect, in contrast to the late appearance of this type of hypertension in patients who have an atrial septal defect.

As the pulmonary vascular resistance increases, the pulmonary arterial pressure gradually increases until it finally comes to equal the systemic arterial blood pressure. Now, when pulmonary vascular resistance further increases there is no longer a change in the pressure relationships in the pulmonary and systemic circulations, but there is a progressive diminution in the amount of blood shunted through the ventricular septal defect until finally the flow of blood through the lungs is no greater than that through the body. The peripheral pulmonary fields in a roentgenogram of the thorax may then no longer show evidence of engorgement, and the electrocardiogram may indicate progressive diminution in left ventricular overwork. Coincident with this relief in the burden of the left ventricle, the clinical status of the patient may seem to improve and his general vitality increase. This patient, whose condition is approaching inoperability since his pulmonary blood flow is diminishing toward equality with the systemic flow, is therefore clinically quite well, in sharp contrast to the patient approaching inoperability who has an atrial septal defect.

As the pulmonary vascular resistance increases further, the pulmonary blood flow will become less than the systemic flow, the predominant shunt through the communication will then be from right to left, cyanosis will appear, and later, progressive right-heart failure will develop. Such a patient with a ventricular septal defect might be referred to by some as the victim of Eisenmenger's syndrome. The condition of such patients clearly is inoperable in the sense that

closure of the defect would only serve to increase the right ventricular and pulmonary arterial pressures, and thus increase the burden imposed on the right ventricle.

The technic of repair of a ventricular septal defect is not a controversial issue, since the defect can be closed satisfactorily at this time only with use of extracorporeal circulation. Some surgeons prefer to achieve closure of a ventricular septal defect by insertion of a prosthetic substance, but our own preference is almost uniformly to repair these defects by direct suture. Fortunately, the technic of direct suture which was developed by my colleague, Dr. John W. Kirklin, has brought about almost uniform avoidance of the previously difficult complication of complete heart block. The sutures are so placed that they avoid injury to or constriction of the delicate bundle of His.

Other factors of technic may play an important role in the cardiocirculatory function after operation. The length of the incision in the ventricle has been shown to have a relationship to the work capacity of the right ventricle after closure of the defect, and therefore the shortest possible incision is employed. My associates, Dr. Kirklin and Dr. F. H. Ellis, Jr., and I prefer routinely to establish cardiac asystole by cross-clamping the root of the aorta to assure a quiet, bloodless field in which to complete closure of the defect accurately and precisely. This ischemic asystole is rarely required for longer than 20 minutes, and ischemic asystole thus produced has not resulted in clinically detectable reduction in the myocardial work capacity.

Particularly gratifying has been the steady improvement in the results of closure of ventricular

septal defect. By 1958 a mortality rate of 10 per cent was achieved, and in 1959, 108 children were operated upon at the Mayo Clinic for ventricular septal defect, with a mortality rate of less than 10 per cent. All patients, no matter how severely ill, or of whatever age, have been accepted for operation when repair was indicated clinically, and the only patients who have been declined surgical treatment are those whose pulmonary blood flow seemed to be lower than the systemic blood flow and who therefore could not be benefited by any known means.

A consideration of septal defects associated with valvular deformities, such as in the endocardial cushion group of lesions, or septal defects associated with pulmonary stenosis, is beyond the scope of this discussion.

SUMMARY

Normally, pressures in the left chambers of the heart exceed those in the right. However, the mechanism of blood flow from left to right through an atrial septal defect is not the same as in the case of a ventricular septal defect. The volume of the shunt through a large ventricular septal defect is directly related to the pulmonary vascular resistance, but the volume of the shunt is only indirectly related in the case of an atrial septal defect.

These discrepant effects of the various types of cardiac septal defects result in differing clinical disease states and operative indications, as well as progression of disability. The current surgical technics of repair of septal defects, the technical problems which remain and the results achieved are briefly reviewed.

More than 80,000 excess deaths occurred in the United States during the influenza epidemics of 1957-58 and 1960.

— National Tuberculosis Association
"Medical News" Feb. 1961

Civilian Medical Problems In The Defense Against Chemical And Biological Weapons

Colonel Dan Crozier, MC

United States Army

The possibility of the use of chemical and biological agents as offensive weapons against the United States is not something from a science-fiction novel. The threat is real and we cannot sit idly by and wait for the first attack before making plans for our defense. The potential patient load that could occur from the use of these weapons is great but with proper preparation including the provision of necessary supplies, indoctrination of the population, and the training of essential personnel, medical care can be provided and a high percentage of casualties will survive.

"WAR IS not inevitable but if war occurs it is inevitable that new weapons systems or new application of known weapons systems will be employed. In the past, with the development of each such system, it has been said that the new weapon was the ultimate in destructive agents, that counter-measures could not be devised. The inaccuracy of this pessimism has been proven in every case." This statement, slightly paraphrased, made by Lieutenant General Leonard D. Heaton, The Army Surgeon General, at the Annual Meeting of the American Medical Association in Miami this past June brings into proper perspective the situation which confronts those responsible for devising defensive measures for the civilian population of this country. First, new weapons will be employed, second, counter-measures can and will be developed. In addition, in the event of total war, it is inevitable that with the new weapons delivery systems available the vast non-military population of the United States will be involved to an extent never before dreamed of.

It is difficult for many individuals to face objectively the possibility that chemical or biological weapons might be employed against this country. Bullets, bombs, and shell fragments they

can accept but the very idea of the use of poison gas or germs produces a feeling of frustration and hopelessness. We must recognize the very real possibility that these two methods of warfare may be employed as offensive weapons against the Continental United States and make the preparations necessary for protection against them.

Agents in each of these categories may be used directly against man or indirectly through destruction of his food supply, either plant or animal. I will confine my discussion to those weapons which are effective directly against man and, in the case of the chemical agents, to the anticholinesterase agents, the blister gases, and the non-lethal or incapacitating compounds.

Biological and chemical weapons are in some respects quite similar while at the same time they have distinctly different characteristics.

Their similarities are:

Chart No. 1

Similarities of Chemical and Biological Weapons

1. Area weapons
2. Produce mass casualties
3. Recognition requires special methods
4. Affect living cells only

Address presented at Ninth U. S. Civil Defense Council Conference, Medical-Health Section, Minneapolis, Minnesota, 21 September 1960.

1. They are area weapons and are particularly adaptable for offensive use against large groups of personnel. It is unlikely that either would be used against a single individual or even small groups. Densely populated areas such as manufacturing or transportation centers would be likely targets.

2. They may produce tremendous numbers of casualties. It is conceivable that thousands, tens of thousands or even greater numbers of casualties could result from one offensive effort.

3. Recognition of an attack requires special methods. In contrast to the so-called conventional weapons, an attack with chemical or biological agents *may* not be recognized until their effects on those exposed to the agent begin to appear. Intensive programs to develop more satisfactory methods for early recognition are now underway.

4. Both of these weapons systems exert their effects on living cells only and spare buildings, equipment, and other inanimate objects which the enemy may wish to preserve for his own use. They may be said to produce casualties requiring, except for the burns of blister gas, medical rather than surgical treatment.

Chart No. 2

Differences

1. Onset of symptoms differ
2. Different mechanism of action
3. Susceptability different
4. No artificial immunity for chemical agents

1. Symptoms due to exposure to the anticholinesterase agents may have their onset in seconds or minutes and the blister gases in a few hours while the onset of symptoms due to the effects of biological agents will not occur for many hours or days. This difference requires a totally different approach to the problems of treatment of casualties resulting from the employment of these two weapons systems.

2. Chemical warfare agents exert their effects through direct toxic actions. They do not multiply in the body and the total affecting dosage must be obtained from the agent as delivered by the enemy. The number of compounds which theoretically can be produced is unlimited and their mechanism of action may vary widely. Bi-

ological weapons produce their effects by multiplication of the microorganism within the human body. A very minute exposure of a susceptible individual may be sufficient to cause death or disability. These agents occur only in nature and are therefore limited in number.

3. All human beings throughout the world are, for practical purposes, equally susceptible to the chemical warfare agents. This is not true for the biological weapons. Marked differences in susceptibility occur not only in different geographical locations but also in different age groups or in groups protected or unprotected by artificial or natural immunity. There also may be significant racial differences in susceptibility to some infectious agents. A biological agent which might be effective in one section of the world or against a particular group might not be effective against another group or those in another geographical area.

4. There is no known method of producing immunity to the chemical warfare agents. On the other hand we have effective vaccines against many of the biological agents which are potential offensive weapons for use against the United States and additional vaccines can and will be produced.

As you have already heard, effective mechanical methods have been developed for protection against both chemical and biological weapons. The most important of these is the face mask. These masks, which can be produced in quantity, are both effective and comfortable. They will protect the wearer against the inhalation or entry through the skin of the face, or through the eyes or the gastro-intestinal tract of any of the likely biological or chemical weapons. This protective mechanism is effective, however, only if being worn at the time of an attack or put on at the very first appearance of the agent. Human nature being what it is, it can be expected that many individuals will not have their mask immediately available should they become necessary and secondly, our presently available warning systems are such that we have no assurance that a massive initial surprise assault with either of these weapons systems would be recognized before a great deal of damage was done.

Protective clothing, filters for air conditioning and ventilating systems and gas proof and germ proof buildings are also a reality. Housing for essential military and civilian activities no doubt will include some of these features in future plans.

I would like to turn now to a more detailed discussion of some of the problems that we will face in the care of casualties resulting from chemical agents. We have already established the definite possibility that large numbers of civilians could be involved in such an attack. There are a number of different agents with varied characteristics that could be employed but I will confine my remarks to three.

First is the group of anticholinesterase agents or the so called nerve gases which you have read so much about in the newspapers. They constitute a serious potential threat but, contrary to the scare headlines, not a hopeless one. If we are properly prepared effective counter-measures can be applied.

These agents are effective either in droplet or vapor form, are amazingly rapid in their action, and are effective in extremely low concentrations. One deep breath may be sufficient for inhalation of a lethal dose and a few droplets applied unnoticed to the exposed skin may result in death.

The anticholinesterase agents act through destruction in the body of essential enzymes. The signs and symptoms produced may be divided into the muscarine-like effects, the nicotine-like effects and the central nervous system effects.

Chart No. 3

Muscarine-like Effects

Constriction of pupils
Lacrimation
Difficulty in focusing
Eye Pain
Rinorrhea
Chest pain
Increased bronchial secretion
Wheezing and cough
Nausea, vomiting and diarrhea

The muscarine-like effects produce constriction of the pupils, lacrimation, difficulty in focusing and possibly some mild discomfort in

the eyes. The nose may be involved producing rhinorrhea or a profuse watery discharge. When the exposure is to vapor rather than to droplets on the skin these will be among the first symptoms produced.

Inhalation of the gas produces a pressure like pain in the chest from constriction of the bronchial tubes, increased production of secretions in the bronchial tree which may interfere with breathing, and wheezing and cough. Nausea, vomiting and diarrhea may occur from effects on the gastrointestinal tract.

Chart No. 4

Nicotine-like-effects

Muscular weakness
Easy fatigue
Muscular twitching
Pallor

The nicotine-like effects result in muscular weakness, easy fatigability, muscular twitching and pallor of the skin. The muscular weakness may involve the muscles of respiration producing one of the most serious effects of the agent.

Chart No. 5

Central Nervous System Effects

Anxiety and restlessness
Headache and dizziness
Tremor
Respiratory depression
Convulsions

The central nervous system effects result only from systemic absorption of the agent but this can result either from inhalation or from contamination of the skin. Anxiety and restlessness occur and the patient may complain of headache and dizziness. Muscular twitching and tremors may appear. Central nervous system effects may involve the respiratory center producing depression of respiration. This, added to the already present respiratory embarrassment produced by the increased secretions, broncho-constriction and weakness of the respiratory muscles may have very serious consequences. With large doses generalized convulsions may occur.

This description of the clinical picture of nerve gas poisoning is greatly oversimplified and a number of important aspects have been omitted. For our purpose this morning, however, it will be sufficient to bring out the important points

necessary for understanding our defensive requirements.

Colonel Scarle discusses a figure of 30% casualties resulting from an intensive nerve gas attack on a densely populated area. This figure has been derived through sound reasoning and is as close as can be determined without actual experience factors. It is a reasonable figure that can be used for planning purposes. It is based on the assumption that the individuals exposed have gas masks available and can get them on quickly. Within such a group the variation in severity of symptoms will be quite wide due primarily to the differences in the dose received.

For general planning purposes these casualties may be divided into four approximately equal sized groups. The first group or approximately one fourth of the total will have received less than one lethal dose and will survive even without treatment. They will exhibit mild symptoms including constriction of the pupils and some blurring of vision, probably some discomfort in the chest and salivation. They may be incapacitated for minutes or hours but will recover. With such symptoms, however, most of these patients will receive treatment if it is readily available. That is, if the individual is carrying his own supply of atropine in a syrette or an automatic injector he is going to use it if he feels he has been exposed. These individuals will not require the time or attention of others.

The second group comprising approximately one quarter of the total number affected will have received more than one but less than 3 to 5 lethal doses. Symptoms will be more pronounced and the individuals will be more severely incapacitated but they will survive if they receive an immediate dose of atropine. Most of these individuals will be able to treat themselves, that is, administer their own atropine if they have it immediately available, but some will require assistance either because of physical incapacity, because of confusion or poor judgment due to fear or excitement, or because they have not bothered to carry their atropine with them. Some of these individuals will die, however, because all will not get this very essential treatment.

Up to this point we have discussed the care

and treatment of approximately one half of the total number of casualties. This type of care should be available without the assistance of specially trained personnel. This is self aid or buddy aid and instruction in this area should be high on the priority list of civil defense planning.

The next group will have received more than 3 to 5 lethal doses but somewhat less than the most severely affected group. They will survive with the use of atropine alone but the drug must be given quickly and in large amounts. In such cases the ordinary intramuscular administration probably will not suffice and injection into a vein or directly into the heart or lung with a long needle will be required. The treatment of this group of casualties will require the assistance of specially trained personnel. This does not imply that survival will depend on the presence of physicians, nurses or other highly trained professional personnel, but rather that individuals specially trained for this purpose will be required.

The fourth or most severely affected group will have received dosages up to as high as 30 to 50 lethal doses. They will not survive if treated with atropine alone, even in massive doses, but will require artificial respiration which must be started immediately and continued without interruption for a number of hours. Mouth-to-mouth insufflation is the method of choice to supply this added therapeutic measure on an emergency basis but cannot be used in a contaminated atmosphere.

Where masks must be used a special mask-to-mask mechanism has been developed by the Army which allow artificial respiration to be continued even under these circumstances. This item is not yet in production.

For use in either a contaminated or uncontaminated atmosphere, a mechanical respirator operating from any source of compressed air has been developed. This unit is adjustable for both volume and pressure and will cycle if either the tidal volume (900-1000 cc) or the prescribed pressure (60 cm H₂O) is achieved. This is a simple, sturdy, relatively inexpensive piece of equipment which is very efficient but requires the insertion of an endotracheal tube.

I would like to pause here for a moment to discuss the role of the physician in the care of these casualties. In the event of a nerve gas attack the percentage of physicians affected will be as high as that for other occupational groups. Physicians, even those mildly exposed and not requiring treatment will be incapacitated for some period of time. The reduced number of physicians available, combined with the very important fact that treatment must be given immediately, requires that the treatment described be started by non-medical personnel. The patients in groups three and four will, in a well-developed Civil Defense Organization, be concentrated, after initial emergency treatment, at central collecting points where further medical care will be available. The presence of a physician during the early stages of treatments will make little difference in the ultimate outcome if the civilian population has been properly trained. As time after the attack progresses, those still requiring treatment will need all the help they can get and the best professional judgment available if they are to survive.

Survival of casualties resulting from a nerve gas attack is primarily a function of time. If adequate emergency treatment, atropine and artificial respiration, is immediately available, it is possible theoretically to save a high percentage of those affected. If it is not immediately available, and by this I mean within one to four or five minutes, the percentage of deaths is going to be extremely high. Death is due to failure of respiration caused by paralysis of the respiratory muscles, depression of the central nervous system, secretions in the bronchial tree, and perhaps by constriction of the bronchial tubes.

I have spoken at length about the use of atropine in the treatment of nerve gas casualties. It is essential in the treatment of this condition but also is a potent poison. The individual exposed to nerve gas is very tolerant to atropine and those receiving a heavy dose of an anticholinesterase agent may require fantastically large amounts of the drug. On the other hand the individual who has absorbed little or no nerve gas may develop mild symptoms of atropine poisoning from a single injection of 2 milligrams and two injections may render him unable to shoot a rifle or attend complicated equipment. For this reason the avoidance of atropine

administration to the individual who has not actually received a significant amount of nerve gas, and who must carry on essential activities is just as important as prompt administration to those who have been exposed.

The Army has adopted the policy that each soldier normally will carry one automatic injector of atropine but that under special circumstances he may carry up to three individual doses either as the automatic injector or the syrette. All military personnel will be taught to recognize the need for atropine and non-professional personnel will be authorized to administer up to three doses to any casualty. The medical soldier will carry additional supplies of this drug, but under combat conditions this amount will be limited.

The military services have four standard atropine items specifically designed for the treatment of nerve gas casualties. These are the automatic injector, the syrette, and the ampin, each containing 2 milligrams of atropine, and a 25 cc vial containing 2 milligrams of atropine per cc. The first three items are primarily for field use although the syrette is also a standard hospital item for a theater of operations. The automatic injector is for self administration by the individual soldier and can be used with a minimum of effort. It is considerably larger, heavier, and more expensive than the syrette so the latter will be used for other than self administration. The 25 cc vial will be used at medical treatment facilities where the administration of large amounts of the drug may be required.

Up to this time I have not mentioned the use of oximes. This series of drugs, the newest addition to our therapeutic armamentarium for the treatment of poisoning with anticholinesterase agents, is an adjunct only and can replace neither atropine nor artificial respiration. The exact mechanism of their action is poorly understood but they appear to exert their primary effects on the nicotine-like action of the anticholinesterase compounds. They also may have some beneficial action on the muscarine-like effects and the central nervous system manifestations. They are effective to some extent when given orally but their action is slower by this route and the nausea and vomiting of severe nerve gas poisoning may make this method of administration im-

practical.

When given parenterally, either intravenously or intramuscularly, they appear to decrease the amount of atropine required and to shorten the time that a severely poisoned patient will require artificial respiration. This latter effect would have great practical importance in the event of a mass casualty situation, or where treatment is being carried out under field condition. In addition there is some evidence that the oximes are effective when used prophylactically. Considerably more work on these drugs is required before an item suitable for general use is developed.

What then is our position in the defense against a nerve gas attack? In a properly trained, equipped, and disciplined population, the early symptoms and signs of nerve gas poisoning will be recognized and proper protective measures applied. For those requiring treatment, adequate methods are available.

The most important factors to be considered are time and training. And by time here I mean seconds and minutes. The mask is going to be of little benefit if not immediately available and properly used. Atropine will be of little value if too long delayed. Artificial respiration will be useless if not promptly applied and properly administered. There will not be time for physicians or other specially trained personnel to seek out and treat the casualties. Neither will there be time for rescue squads to collect these casualties and transport them to a central treatment station. Treatment must be started immediately and that can be done only by the individual himself and those around him. If they are to survive they must understand and be able to administer the preliminary treatment promptly and properly.

The second group of chemical agents that might be used against us is the blister gases of which mustard is the best known and the most likely to be used. This agent was used extensively in World War I and was very effective. It is encountered either as a gas or a liquid and produces its effect on the skin, eyes, or lungs. As its name implies it blisters or burns any tissue with which it comes in contact. Masks and protective clothing offer excellent protection. When one is exposed to either the gas or the vapor the onset

of symptoms is quite slow and the full effects may not be appreciated for many hours. The mortality resulting from this agent is small being only about 2% but the time required for recovery is prolonged and the patients require a great deal of care.

The effects of this weapon are similar to those of any other vesicant agent and there is no specific treatment once the burns have occurred. Copious washing is quite effective when used early for liquid contamination of the eye and protective ointment or soap and water will remove the liquid agent from the skin. Burns resulting from these agents are treated like any other severe burn. The pulmonary injuries are treated symptomatically with antibiotics being used only if indicated for the control of infection.

The third group comprises the so-called non-lethal or incapacitating agents. There is little that I can add to what Colonel Searle has already told you about these potential weapons. Here we are concerned not with saving life but with maintaining effectiveness. The list of possible agents is large and without doubt more effective compounds will be produced. At the present time our aim should be to keep abreast of developments and be prepared to direct our efforts in the proper direction when required.

Let us turn now to some of the civilian medical problems that would be encountered in the event of an attack against the continental United States with biological weapons. Since the beginning of recorded history, naturally occurring disease has been an important factor in the outcome of military campaigns. It is only natural that this means of producing noneffectiveness would be considered as a possible offensive weapon.

In Dr. Fothergill's paper he has shown very clearly that, in spite of the fact that biological weapons have, to our knowledge, never been employed on a large scale, the use of biological agents as an offensive weapon is feasible. In addition, the geographical area that possibly and probably would be affected by a single offensive effort, is larger than that of any other known weapons system. Its overt use would be almost exclusively as a strategic weapon which would expose the civilian population to as great if not greater extent than it would the military. Lo-

calized covert attacks by saboteurs could be effective and would give rise to special problems. Time, however, does not permit additional discussion on this method of employment. You have already learned of the characteristics of potential agents, and of the methods and effectiveness of dissemination. The problems of early detection of an attack and identification of the organism also have been discussed.

In contrast to the chemical agents, time, as measured in seconds or minutes, for the institution of life-saving treatment, is not a critical factor. For this reason it is not as essential, as it is in the case of the chemical weapons, that everyone understand the methods of treatment or that medication be immediately available. Our approach to the treatment problem, therefore, will be different.

The most effective defensive measure against such weapons is biological immunity either naturally acquired or artificially induced. It is unlikely that an enemy would employ the organism of one of the childhood diseases against which a large proportion of the adult population of this country is known to be immune. On the other hand he might well consider an agent against which we were known to have an effective vaccine if he thought that the number of people unprotected by this means was sufficiently high. The military forces of the United States keep their personnel at a high state of protection against those diseases for which routine immunization is provided. If the administration of vaccines against other diseases is ordered there is assurance that a high percentage of military personnel will be inoculated. The civilian population, on the other hand, does not exhibit an enthusiastic inclination toward such protection even when the protection is known to be of high order. For example, in September 1959 after 4 years of effort, only 68 per cent of the population of this country under 20 years of age had received 3 poliomyelitis inoculations. Obviously the mere existence of an effective vaccine, would not necessarily deter an enemy from employing a specific agent. Effective legal means for enforcing compulsory immunization in the civilian population would diminish this problem. Even in time of danger and short of martial law, considerable difficulty would be encountered in executing an effective inoculation program on

a voluntary basis. The presentation of legislation designed to overcome this difficulty could be done without the expenditure of funds and would do as much as anything to bring to the attention of our state and national leaders the importance of this problem.

Within the past few years our knowledge of vaccines has increased enormously. New vaccines have been developed, production methods have been improved, and production capabilities have been increased. We have every reason to believe that even greater advances will occur in the future. It would be impractical, however, to attempt, under peacetime conditions, to immunize the civilian population, or even the military against all of the potential BW agents for which we now have or possibly could develop effective vaccines.

Even a known effective vaccine such as that against smallpox provides relative immunity only and additional vaccine must be administered at time of extensive exposure. Other vaccines such as plague and cholera have not undergone adequately controlled studies and their degree of effectiveness under adverse conditions is not known. In addition, all of our presently available vaccines have not been tested in man against the respiratory route of exposure or the large dosage that possibly could occur in the event of an attack with biological weapons. Studies in animals and in some cases in human volunteers, show that these two factors probably would not make significant differences.

In general, it is felt that vaccines would be effective and would offer our best protection against such an attack. In view of this the development of new methods for the mass administration of vaccines is important. Distinct progress in the development of combinations of vaccines in a single injection has been made and additional progress is in view. One vaccine has been developed that can be given by mouth and there is every reason to believe that further advances will be made in the preparation of oral vaccines against diseases normally contracted by way of the gastro-intestinal tract.

The jet injection device developed by the Army for the administration of vaccines has distinct advantages over the needle and syringe

method when large number of injections must be given. It is possible with this device for one person using one instrument to administer as many as 500 injections per hour with the complete elimination of the danger of serum hepatitis.

Methods for the administration of vaccines by aerosol are being studied and possibly may open new avenues of approach to the mass inoculation problem.

The use of prophylactic measures other than vaccines would be a problem for the medical profession and Civil Defense authorities in the advent of biological warfare. The use of presently available antibiotics for prophylaxis in large groups of people over long periods of time would be impractical, wasteful, probably dangerous, and should not be considered. It is possible that yet undiscovered antibiotics may change this viewpoint.

The use of prophylactic antibiotics in a population known to have been exposed to an attack with a biological agent would be a different matter but here again very careful consideration would need to be given to the entire problem before a final decision could be made. With the tremendous demand for antibiotics for the treatment of clinical cases, very careful evaluation of the effectiveness of prophylactic administration would be necessary. In some diseases a broad spectrum antibiotic will delay but will not prevent the onset of the disease. In others, administration of the drug late in the incubation period will prevent the disease while if given early it will simply delay the onset. In monkeys, in at least one disease, the early administration of an antibiotic will delay the disease as long as the drug is administered but the disease will be prevented only if the vaccine against that disease is given simultaneously.

The treatment of patients contracting a disease as a result of exposure to a BW agent will not differ materially from the treatment of those contracting the disease naturally. The abnormal route of exposure and the possible unusually heavy infecting dose resulting from the artificial dissemination of the agent may produce unusual manifestations or unusually severe disease but

the causative organism, to the best of our knowledge, will respond in the same way to specific therapy regardless of the mode of infection.

If an individual is infected by way of the respiratory tract with an organism which normally enters the system through some other means, such as an insect bite or by way of the gastrointestinal tract, the onset of the disease may be different, certain useful diagnostic findings such as the cutaneous lesion of scrub typhus, may be absent, and the clinical picture may be confused. As a generalization, most of the diseases, believed to be of biological warfare import, have an onset which is grippal in character, with or without obvious initial signs of respiratory involvement.

Practically all clinical infections with bacterial or rickettsial agents considered to have the characteristics which would make them likely candidates for BW, will respond rapidly to the broad spectrum antibiotics if treatment is begun promptly. To the present time antibiotic resistant strains of these organisms have not developed in nature but the possibility of the laboratory development of resistant strains for use as offensive weapons must be kept in mind. Treatment of viral infections would not be as successful but we have effective vaccines against a number of these agents and progress in the development of others is steadily increasing.

It is not necessary that 100 per cent of the exposed population be made sick for an attack to be effective. If large numbers of individuals become ill, additional large numbers will be required to care for them. In addition, there will be the bonus effect which will accrue from fear. The fear of exposure to something new that one cannot hear, feel, see, or smell will give rise to a becoming ill will be a source for rumors and counter rumors. Minor symptoms will be exaggerated by those who feel they may have been exposed. The reaction of individuals waiting out an incubation period may add materially to the loss of manpower and effectiveness.

Individuals becoming ill as a result of exposure to BW agents will not be affected so suddenly that emergency treatment will be required at the site. Generally there will be warning

symptoms which will develop over hours or days which will allow them time to return to their homes. In addition they will not all become ill at the same time. For some, the incubation period may be quite short while others may not be affected until several days later. Some will not become casualties at all. This removes the extreme urgency that occurs in the treatment of nerve gas casualties.

Casualties occurring from BW weapons will not, except under unusual circumstances, be treated in hospitals. Elaborate treatment measures such as oxygen tents or intravenous fluids will not be used but effective treatment will be available at home or in improvised treatment centers. Diagnostic problems will be encountered, particularly at the onset and some patients will die regardless of what we do. If we have made the necessary preparation and adequate supplies of drugs are available, effective treatment can be provided for most of those affected. This means, however, that the requirement for additional quantities of drugs, numerous psychological problems. Any individual over and above the amount normally consumed in an area, must be realized and the necessary stocks placed so as to be available on short notice.

Of equal importance is the training of public health officials, other physicians, and nurses in the management of infectious disease. Because of the tremendous advances made in the control of these diseases in recent years the number of physicians with a particular interest in this field has decreased sharply. It is not unusual for a young doctor, to go through medical school and a year of internship and never see a case of smallpox, diphtheria, typhoid fever, or malaria, diseases which were common in this country only a few years ago. He will have only a reading knowledge of yellow fever, dengue, Venezuelan equine encephalomyelitis, and possibly also of psittacosis, tularemia, Q fever, and coccidioidomycosis. It is essential that national, state, county, and local medical societies stress the importance of expanding our knowledge of these diseases.

It is important also that we continue to expand our medical research programs in these areas. The military services have taken cognizance of this and programmed an increasing effort in this field over the next few years. Probably in no other field of military research are the benefits to civilian medicine and to mankind as great as in the study of infectious disease.

Average life expectancy in this country has increased by more than 22 years during the present century, Health Information Foundation reports. The average baby born in 1900 could expect to live only 47.3 years, against 69.7 years for one born in 1959.

He Carried the Good Book and the Scalpel

Some observations of early medicine in Arizona—

A. I. Podolsky, M.D.

"Let him who would be the greatest among you, be the servant of all. . . . Love and services will win, or I will fail." — Harry Alanson Reese, M.D. — January 23, 1868 - April 25, 1949.

THESE ARE the opening lines of address of the President before the Arizona State Medical Association at its Fortieth Annual Meeting, held in Nogales, Arizona, May 7-9, 1931.

This humble essay is not intended as a eulogy of Harry A. Reese, M.D., an early pioneer of medicine in Arizona; — his kindness, gentleness, unselfish devotion to his work and his simple greatness remain as a living memorial in the hearts of his colleagues and patients. Mention of his name to anyone who knew him invariably elicits a softness of the look in the eyes, and a respectful modulation of the voice. I have yet to find someone who didn't consider him somewhat of a saint. These observations are a contribution to the compilation of history of medicine in Arizona, and are, in part, based on a study of a scrapbook which Doctor Reese left to his son, G. G. Reese, of Yuma, Arizona.

This writer makes no claims as a philosopher; however, "Daddy" Reese was a philosopher of great depth — and charming wit, without a trace of cynicism. It is a real education to pore over the crumbling yellowed pages of his scrapbook, read his letters, poems, excerpts and notes of scientific meetings, and his comments thereon. One can even read poems of love, addressed to his wife, written in his clean, bold type of handwriting, without blushing or feeling that he is intruding in the intimate privacy of this man's life. Indeed, — a doctor reading and studying this scrapbook, would invariably be left with a

soaring sense of re-dedication to the unselfish idealism he had as a young novice, and a sense of shame for having descended to the level of idolatrous worship of money and power.

Here are the written words and poetry of a man who was kind to everyone without thought of reward. He was infinitely gentle and thoughtful of the feelings of others — a true gentleman. He was skillful in the art of medicine, surgery and obstetrics. He was blessed with simple, humble piety, and was a tireless medical missionary, who directed the Mexican Missionary Hospital in Bisbee, Arizona, in 1920 thru 1925. In fact, he gave up a job with the Calumet and Arizona Mining Company in Bisbee, Arizona, which he had held since 1907, and which paid him a salary of \$700.00 a month, to assume the job as director of the Mexican Missionary Hospital at \$150.00 a month. In a letter of May 1, 1923, to the Board of Home Missions of the Presbyterian Church, New York, he complained, "I sometimes wonder if the Board has employed me to make reports, or heal the sick and teach the Gospel."

He decried the Mexican practice of worship of saints as "nothing less than idolatry." In writing of the Mission's work, he stated, "We heartily approve and encourage every move that the Mexican people make for the betterment of their own race. They need every encouragement, for they are like children in many ways. I wish I could show the Mexican as he really is in

his home, in his religion and in his social life."

He wrote interesting accounts of Lucia Borgas, a Mexican girl, who was kidnapped by the Yaqui Indians, and of a little boy, Gerardo, who was "Lo mismo que un burro." (the same as a burro). Another interesting and possibly priceless item in his scrapbook, is an intact, though slightly faded copy of the Douglas Daily Dispatch of Sunday, August 5, 1906. This edition described a strike of 30,000 workers in St. Petersburg, Russia, and beginning revolutionary activities, as well as the prediction that the Stalypen cabinet would fall, and that Grand Duke Nicholas would be nominated to the Chief Command of all the troops in Russia. Another item — "Goldfield, Nevada, August 4. — Battling Nelson, through his lawyer today expressed a willingness to meet Joe Gans in a finish fight for \$30,000 here on Labor Day. The money, now deposited in a local bank, will be posted in San Francisco tomorrow. Gans' acceptance is expected tomorrow." Another item of interest — "Saloons to be limited. Chicago to be permitted only one saloon for every 500 persons, etc."

In January, 1940, the Yuma County Medical Society honored the beloved colleague by having his portrait made, and having it hung in the Staff room of the Yuma County General Hospital. Dr. Reese's letter to Dr. John F. Stanley, then President of the Society is a beautiful masterpiece of humility and simple clarity. In the third paragraph, he wrote, "At the end of the year '39 when I wrote you a letter advising the Yuma County Medical Society that I am no longer able to practice medicine, my greatest hope of reward was that I might receive a letter from my fellow physicians giving me the promise that they will faithfully carry on the great work of healing the sick of every race, color or creed. I have that assurance in this fine letter of yours, and this high honor. What did I ever do to gain such a spot? I was "one of the least of these" among the M.D.'s of the State and County. I never knew before that we have a "Hall of Fame," but if we have, and you will add one picture every year, I will gladly do my part by posing for the photographer."

He loved to write poetry, and he had a book of his verses published. He also wrote such

observations as "The Pledge of the Medical Missionary" in which he wrote, "Not on my own merit, for I have none, but surrendering my whole being to Divine Guidance, I will make my life count for much. By consecrated and faithful endeavor I will develop and maintain those qualities of mind and heart which will command the respect of all good men and the love of little children. As I journey down Life's pathway I will heal a few sick folk, for that happens to be my business; and I will point the way to the Cross to a few souls in the dark, that they may seek and find salvation; for that is a Christian duty. I will find joy in service, and will sing and laugh often, that I may not worry and be over-anxious about results. Throughout my entire existence on the earth planet I will strive to make the world a little better because I have passed this way. And when "I lay me down to sleep" may the memory of my life be an inspiration to all those who are poor in this world's goods, but rich in things eternal. So might it be." — Harry A. Reese, M.D.

On the same page, there is a letter from the late Dr. E. Payne Palmer, notifying Dr. Reese that he "did himself proud," and "made the highest average" in the recent (State Board) examinations. It was dated January 18, 1908.

In a letter to the Yuma County Medical Society in 1939, announcing his intention to retire from active practice, he told of his beginning the study of anatomy in a preceptor's office in Salina, Kansas in 1892, and of his graduation from the Marion Sims College of Medicine in St. Louis in 1896. Copies of his radio talks on "Heredity and Babies" and "Heredity and Habits" given in June, 1932, and which contain much homespun common sense are also found in the scrapbook; as well as his first printed prescription blank inscribed "Take to H. L. Irwin and Company, Prescription druggists, Hope, Kansas." This was his first location in the practice of medicine, and the year was 1897. A letter of April 3, 1914, shows that he enclosed payment and ordered Bibles printed in Spanish, for free distribution to his patients.

His notes, in longhand, taken at various medical scientific meetings are still legible, and very interesting. For example, "Importance of Sewer

Rental Laws" was a long and tiresome discussion of this subject by the Assistant Chief Engineer, Los Angeles County Sanitation Districts. 'Recent Epidemiological Trends in Childhood Tuberculosis' by Max Pinner, M.D., Desert Sanatorium, Tucson, will no doubt look good in print, but he failed to get the message over to me. This was not so, however, with the next speaker, Dr. John W. Flynn (father of our own Robert Flynn, M.D., Phoenix) who presented the subject entitled "The Diagnosis of Active Tuberculosis in childhood." Dr. Flynn has a good voice and speaks distinctly. He spoke of the importance of (1) History, (2nd) Skin Test and (3rd) X-Ray. This does not mean that he has thrown away his stethoscope. He knows the chest."

Dr. Reese served as president of the Yuma Charity Association from its inception in 1926 to 1930. He was very active in many civic affairs as well as serving as Director of the Health Unit, instituting many public health reforms.

Some of his poems found in the scrapbook are titled:

"Looking Ahead with Arizona."

"Lindberg's Complaint" (on the kidnap-murder of his son)

"A Red Cross Hymn."

"Let Me Paint Your Window."

"The Man Who Is Down and Out."

"Farther On."

"That Frog Escaped from the Burning Sands."

"Boulder Dam."

"That Salome Frog."

"That Yuma Frog."

"Pal of Mine." (To his wife)

"The Enemy."

"I had a Friend."

In his paper, "Conservative Obstetrics," read before the 34th Annual Meeting of the Arizona Medical Association in 1925, he gave forth with wisdom that still bears re-reading, even by some of us sophisticated, "enlightened" practioners. I quote a particularly pithy portion of his talk. "Do not be an extremist. Do not be a conservative. But be awake, and alert, and of real assistance to the parturient woman. Ease her pain, shorten her labor if unduly prolonged, assist her when she needs help, protect her

against infections, lacerations and hemorrhage. Earn your fee, or turn the case over to a Mexican mid-wife who hangs a picture of a "Saint" on the wall, and dances about the room, and bows, and sings."

His scrapbook also contains the certificate of membership in the Order of De Molay, issued to his grandson, Jerry Irwin Reese. Imagine the heart-filling pride of the man in his beloved family! Nowadays, we are too prone to be blase about these things.

An editorial in the July 31, 1936 issue of the Yuma Evening Herald praised him as "An official of Real Merit."

His son, G. G. Reese, of Yuma, was kind to offer to let me read the letters of his father. These were addressed to his sons and contain a wealth of folksy wisdom and stories of Dr. Reese's own youth. He told of his parents' troubles with Indians in Kansas; his frail build, his "log house" home on Gypsum Creek, Saline County, Kansas; how he tried to ride on the back of a big dog, and fell off, breaking his arm. He instructed his grandchildren (in a letter), "Now take your Bible and find the 91st Psalm and read it and repeat the last verse. That's it!" He told of his marriage on September 5, 1894, and that the wedding supper cost his father-in-law five turkeys and fifty bushels of wheat. He told of his first, and only, chew of tobacco at the age of eight years, and how he "nearly died" from the effects. Also, he related about the one year of preceptorship he served with a Doctor Harvey before he enrolled in medical school. He had previously taken a teacher's course at Salina Normal University, and then taught school at Mount Tabor and later at his Alma Mater, Salina Normal University. It was here that he met Jennie Shultz, a pupil, who eventually became his wife.

His was a life, brim-full of love, for his wife, his family, his church and his fellow man; a life of untiring service, skilled and bountiful. I can briefly summarize his story by saying, "He was the kind of man I would like to be."

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References: 1. Freedman, A. M.: *Pediat. Clin. North America* 5:573 (Aug.) 1958. 2. Nathan, L. A., and Andelman, M. B.: *Illinois M. J.* 112:171 (Oct.) 1957. 3. Santos, I. M. H., and Unger, L.: *Ann. Allergy* 18:179 (Feb.) 1960. 4. Litchfield, H. R.: *New York J. Med.* 60:518 (Feb. 15) 1960.

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1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases “Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease.”²

2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958.

arthritis “It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . .”³

3. Fernandez-Herlihy, L.: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.⁴ Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.⁵

4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases “Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult.”⁶

6. Overholser, W., and Fong, T. C. C. in Stieglitz, E. J.: Geriatric Medicine, 3rd edition, J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.⁷

7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.⁸ “Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes.”⁹

8. Duncan G. G.: Diseases of Metabolism 4th edition W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

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to you on easy monthly payments at bank rate of interest. It builds goodwill for you. Your patients won't have to sacrifice good health because they can't afford it.

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Medical Society of the United States and Mexico

Resume, 1960 Annual Meeting

The 5th Annual Meeting of the Medical Society of The United States and Mexico took place in Guadalajara, Jalisco, Mexico November 8th, 9th and 10th and in Mazatlan, Sinaloa, Mexico November 12th. The traditional "break the ice" party was held the evening of November 8th at the French Circle in Guadalajara and was very well attended by both American and Mexican members. Refreshments were served and dancing was made possible by a rather large orchestral group. Registration also took place at that session for most of the members attending.

The following morning a solemn inaugural ceremony was held at the "Casa de la Cultura Jalisciense." The local military band not only provided the background music but also played the national anthem of both countries at the conclusion of the inaugural speeches. These were given by Dr. Ignacio Chavez, incoming president, of Guadalajara, and Dr. W. R. Manning of Tucson, the outgoing president of our Medical Society of The United States and Mexico. A welcoming speech was also made by the Hon. Juan Gil Preciado, the Governor of the State of Jalisco, officially declaring the meeting inaugurated. Others present were the Hon. Adolph B. Horn, the General Consul of the United States in Guadalajara, Dr. Juan J. Menchaca, Mayor of

the city and Dr. Roberto Mendiola Orta, President of the University of Guadalajara. Of particular interest was the context of Dr. Manning's speech touching on the basic issues pertaining to the survival, success and progress of this organization. Dr. Manning emphasized the importance of the activities of a medical and paramedical nature which this organization should launch, or at least endorse. He also remarked on the necessity for a more personal type of relationship between the Mexican and American members in both the social and scientific sessions of this Society.

The members then proceeded to attend the scientific session which was held at the same locale. The papers given that morning were as follows: Dr. Lester R. Dragstedt on peptic ulcer. Dr. Juan Lopez on teflon prosthesis of the aortic arch. Dr. F. Landeen described modifications of the method for caudal blocks. Dr. Delfino Gallo spoke on cecal appendix and its use in ureteroplasty. Dr. Walter Stevenson spoke on the differential diagnosis of acute red eye. Dr. Harry Steelman presented a film on the surgery of epilepsy and Dr. Mario Paredes gave a talk on thyroid physiopathology. Dr. G. H. Taber spoke on supracondylar fractures of the humerus in children and a method of treatment. That con-

cluded the morning session for November 9th, 1960 in Guadalajara.

The following morning Dr. John E. Scarff spoke on hydrocephalus and its treatment, followed by Dr. E. Contreras Reyna and Dr. Orozco de la Torre who delivered a paper on trans-operative cholangiography. Dr. Maxwell Lockie spoke on the current treatment of rheumatoid arthritis and gout. The paper by Dr. Clarence Salisbury was read by Dr. Juan E. Fonseca and was entitled, "What should we expect from Public Health in the Sixties." Dr. Harry Thompson spoke on the diagnosis and treatment of systemic lupus and Dr. Trinidad Pulido spoke on arterial trauma. A paper by Dr. Harry P. Limbacher on poisonous stings in the southwestern United States was read by Dr. Hiram Cochran. Dr. Jose Guerrero Santos of Guadalajara spoke on recent advances in facial plastic surgery.

On the morning of November 12th, 1960 the scientific sessions were continued in Mazatlan at the Hotel Belmar where Dr. Francisco Comasana spoke on antimetabolites and antibiotics. Dr. Gallo gave another paper on special techniques for the repair of recto-vaginal fistulas.

The social events, aside from the "break the ice" party and the inaugural session described above, consisted of a dinner on the 9th of November at the Casino Guadalajara and a night session at the Club Atlas entitled "Noche Tapatia" where folk dancing and cock fighting held the members entranced. On the evening of November the 10th there was a reception at the Governor's Palace for the members at which most of us had the opportunity of meeting the Governor and his wife personally. A formal dance was held the evening of November 10th, at the Casino Agua Azul, again with a display of typical costumes etc. In Mazatlan the social sessions consisted of a dinner at the Casino Mazatlan on the 12th of November and a dinner dance that evening at the Hotel Belmar.

As usual, most of us from the American side were overwhelmed by the hospitality of both places and were greatly impressed with the caliber of the scientific contributions.

At the business session held at Mazatlan on the morning of November 12th officers were elected as follows:

President: Dr. Ignacio Chavez

President Elect: Dr. Juan E. Fonseca

Vice President: Dr. Eduardo Contreras Reyna

Mexican Secretary: Dr. F. Zeron Medina

American Secretary: Dr. Miguel Carreras

Mexican Treasurer: Dr. Gonzalez Murguia

American Treasurer: Dr. Robert Hastings

The Steering Committee, whose five year term expired at this time, was re-elected for an additional term of five years. Its members are: Dr. Harry E. Thompson, Dr. Hector Gonzalez Guevara, Dr. Ignacio Chavez and Dr. W. R. Manning.

No decision was taken at that time regarding the location or time of the next annual meeting. It was decided, however, to have a meeting of the Board of Directors in Hermosillo to make this decision and also to enlist the co-operation and interest of the members of Sonora who had failed to attend the Guadalajara meeting. This meeting was held in Hermosillo at the Gandara Hotel on February 18th at which time it was decided to hold the next annual meeting in Hermosillo on December 6th, 7th and 8th, 1961. It was also decided to attempt to hold a regional meeting in Culiacan sometime in the early summer of 1961 to which effect one of our members in Culiacan has been contacted and favorable reports have already been received.

The idea of the regional meetings is to expand the membership in the society geographically into other regions of Mexico, these sessions being held during the year between successive annual meetings, with a scientific program of minimal proportions and one or two guest speakers from either country participating. At the present time the Society is engaged in investigating the matter of the Educational Council for Foreign Medical Graduates as it affects the Mexican physicians who wish to come to the United States. On behalf of the Society the basic proposal has been made to the council concerning the possibility of establishing a category of clinical clerks, or observers, for foreign positions who could be given an intensive course of training in language and medicine in this country prior to the ECFMG examination. The Council has promised to study the matter further.

Several papers given in Guadalajara and Mazatlan have been translated and are scheduled for publication in *Arizona Medicine* in subsequent months.

Juan E. Fonseca, M.D.

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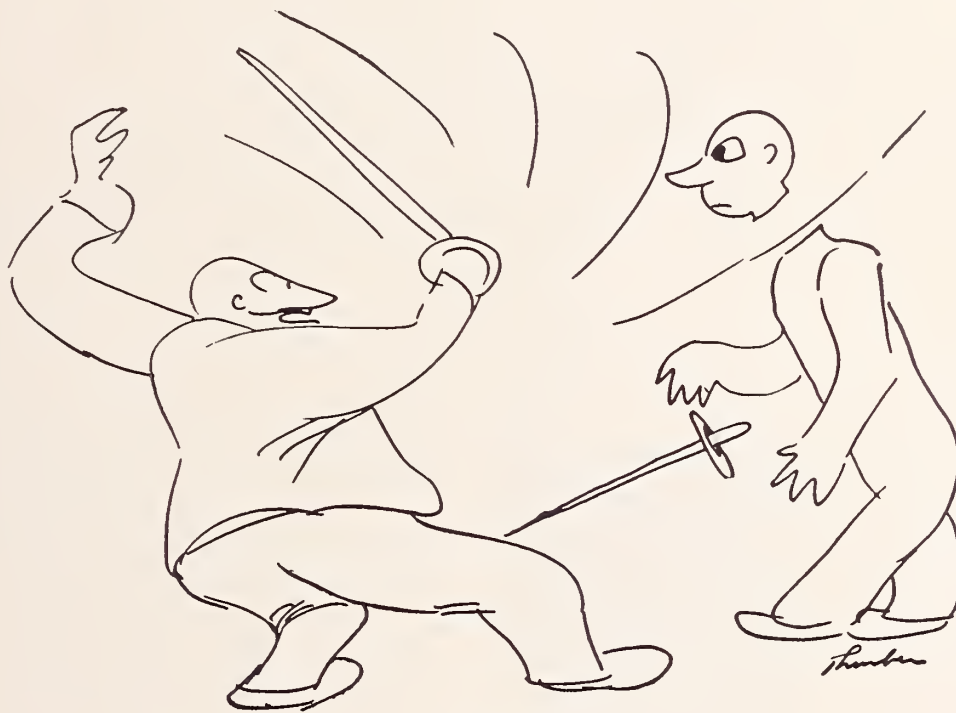
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The President's Page

The Political Doctor

The President's Annual Report to The House of Delegates of

The Arizona Medical Association, Inc. April 26, 1961

Mr. Speaker, Members of the House:

It is altogether fitting that the incoming President of this Association give his inaugural address to a general assembly of its members at the official opening ceremonies of the annual meeting. There he speaks to the entire society of his expectations and plans for the coming year and of his own overview of the medical scene,



Lindsay E. Beaton, M.D.

regional and national. It is equally appropriate that the final accounting by the outgoing President of his year in office be traditionally presented to this House. Here he stands for the last time, before his peers in the leadership of the Association. Here he is privileged to face a gathering of the prime movers of the Association's business — the Delegates, the District Directors, the Officers, and the committee chairmen. Here he can talk directly, out of the full gratitude of his heart, to the men he has worked with for the past twelve months, the men whose labors have fashioned whatever reputation for accomplishment may have been credited to him.

The President's summary of his term of responsibility cannot be a detailed description of the actions taken by the society since the last

convocation of the House. Such a review is the prerogative and obligation of the Officers, the District Directors, and particularly the Committees and Subcommittees, major and minor. It must be understood by any Arizona physician interested in the conduct of his Association's affairs, as certainly every Delegate should be, that they are managed, not by a prelacy, but by a group of presbyteries, that this is government by committee. The Board of Directors is charged, in the interim between sessions of the House, with the authority and control of the society; it is in essence the decision-making committee. Every other committee, from the smallest subcommittee up to the Executive Committee, is charged with the exploration of problems falling within its scope, the creation of solutions or the preparation of alternative recommendations, and the formulation of concrete strategy and tactics. In brief, the initiation of policy begins at the grass roots of the committees, whose members are selected with care as deputies of the various sectors of the profession throughout the state. My résumé is by contrast a panoramic sweep over the whole field of the general direction that the Arizona Medical Association has taken in 1960-61. It is a bird's-eye prospect. And, after a year with a psychiatrist at the helm, I suspect that some of you will be muttering: what a bird! It is also a long-awaited opportunity to bestow some well-earned kudos. The committees of this Association have without exception performed capably and faithfully during the period of my administration; some of them have executed the engagements

laid upon them with great imagination and true brilliance.

Each new year is, of course, the most progressive and fruitful the Association has experienced. It is entirely seemly that every President look back on his tenancy of the rank with this sense of pride in the accomplishments of his colleagues. I think this has been an exciting year, in large part because we live in an era of revolutionary change in every aspect of man's social existence. Goethe once said: "I had the advantage of being born at a time when the world was agitated by great movements, which have continued during my long life. Thus I have attained results and insights impossible to those who must learn all these things from books." This is exactly the stimulation that also drives us, who live in the most crucial of all mankind's centuries. The stir is communicated to medicine and demands original patterns of thought and new searches for answers to the multiplying perplexities that confront us. The ultimatum has been delivered to you and me, who have been chosen by our confreres to guide medicine into its future. While we can never be pressured into any craven abjuration of the principles and standards of a profession, at the same time we cannot stand pat on the hand dealt by the past. We must welcome the challenge.

If it is proper that a President proudly identify himself with the Association's achievements, it is also healthy that he recognize that they were not largely of his doing, that he has bobbed forward on the swelling tide of the society's growth. It is also chastening to his ego to foresee that the attainments of the year ahead will inescapably surpass those of his term, as he most unreservedly expects and trusts they will. Finally, pleased as he may be with medicine's current vision on the questions of the day, he must have the perspective to remember that even a dwarf will see far if he mounts the shoulders of a giant. My predecessors have been giants.

The accomplishments of the Association in 1960-61 you have read in the specific presentations of the various committees, and you have heard in the masterful digest prepared by the skilled Chairman of the Committee on Reports. I would only call your attention to the outstanding furtherance of our professional and scientific mission through the exertions of the Professional Committee and the Professional Liaison

Committee. John Schwartzmann and Noel Smith deserve the special applause of this House. Our educational function is principally fulfilled by the scientific sessions of the convention, and this year has been gratifyingly bounded by two magnificent gatherings of medical talent. Perhaps the most remarkable success of 1960-61 has been our venture in publishing *Arizona Medicine*, which is fast becoming one of the nation's leading State Medical Society periodicals. This triumph must be principally assigned to one man, Darwin Neubauer, a genuinely gifted editor, with a rare combination of literary and scientific judgment, business acumen, and the sturdy courage required to maintain a journal of opinion, with its columns open to all comers and all pertinent controversies. I could not exaggerate the debt this Association owes him.

We have attempted this year increasingly to make known our stands on socio-economic matters of medical significance, with both advances and failures. On the national scene we have open avenues of communication with our Congressional and Senatorial delegations, even with those who may not always visualize the urgencies as we do, and with Arizona's first cabinet member, the new Secretary of Interior. The State executive branch has been most receptive in granting audience to representatives of the Association, and the Governor has pledged to consult us for recommendations on the appointment of physicians for any boards or commissions and to accept our first choice in any instance where the statute commands that the society shall provide a panel of nominees. Furthermore, he has honored his promise in practice. Our record with the State Legislature is less glowing, and we need to prevail more forcefully in the future. Despite herculean efforts on the part of Jesse Hamer and his cohorts of the Legislative Committee and the Executive Staff, only two bills passed in which we had a primary interest — one revamping certain provisions of the Medical Practice Act and one authorizing a new State tuberculosis hospital. Other bills died in committee for reasons well-known, in fact substantially available to anyone who could brave the nausea attendant on reading newspaper accounts of the shenanigans of the last session. However, one fails to see how the prejudices, short-sightedness, and emotional immaturity of Arizona's legislators can fairly be laid at the door of this

Association.

In the medico-economic sphere an encouraging beginning has been made by the Professional Committee toward a comprehensive scheme for providing care for all of the medically indigent in the State, through a system of private practice, underwritten by insurance, and utilizing the funds now being spent, and often squandered, on county and other public health programs. In the meantime, it has not seemed profitable to dissipate our energies on an attempt at State implementation of the Kerr-Mills bill, in view of the complete disinterest and apathetic lack of concurrence on the part of the Department of Public Welfare, and in view of the uncertain outlook for national legislation dealing with the distribution of health services. Our public relations effort has been similarly curbed, until AMA has framed its approach and until we know if some fresh departure is to be tried or if we are to sell ourselves to the public by commercial advertisement. Soon we must, in Arizona, determine on a continuing public education activity, both in our own interest and more importantly in the interest of our fellow citizens.

Lastly, this year has been marked by the usual evolution of our organizational practices, the modifications that are inevitable in the development of a major corporation, as this Association has become. Space requirements have made it necessary to move our Central Office to quarters in Scottsdale; a new bookkeeping and auditing system has been instituted under our able Treasurer, Arthur Dudley; our fiscal year is being changed to correspond to the calendar year; the Loan Fund has been put under bank management; and our liaison with and assistance to the Board of Medical Examiners are constantly growing. It has been necessary to formalize the channels of procedure and the levels of responsibility in the society. All subcommittees now transmit their recommendations to the major committees, which in turn report to the Board of Directors. An Executive Committee has been introduced to handle routine business and prepare alternative plans in disputed matters, so as to spare the Board for its vital assignment of final decision. It is now understood that only the President or his designated spokesman will be the public source of official policy, while only the Secretary will direct the staff in conduct of the day by day business of the Central Office.

In all of this essential housekeeping, the Chairman of the Board, Clarence Yount, and the President-Elect, Leslie Smith, have been indispensable to me. Dr. Smith has undertaken a double role, accepting the position of Acting Secretary, when illness deprived us of the valuable counsel of Lorel Stapley. Both Dr. Yount and Dr. Smith have served me steadfastly and you with high devotion. Our relationships with AMA remain close, thanks to years of collaboration with the parent body by our Executive Secretary and our Delegate, Jesse Hamer. We have not hesitated, however, to stand at variance, when items of contention have arisen. Criticism is not lack of faith. As J. B. Priestly wrote in "Rain Upon Godshill" about the true patriot's attitude toward his country, "We should behave as women behave toward the men they love. A loving wife will do anything for her husband except to stop criticizing and trying to improve him."

The President's personal duties can be briefly particularized. I have not routinely attended committee meetings, other than those of the Board of Directors and the Executive Committee; it is my conviction that committee work is more productive when it is not stifled by opinions from the persons who are responsible for ultimate decision. I have nevertheless gone to 27 meetings, and I have made 45 ritual appearances of one sort or another. These have included such diverse chores as being master of ceremonies at a social agency banquet, waiting on the Governor and the Attorney-General, talking to newspaper representatives, attending committees of the Legislature, entertaining visiting dignitaries, going to AMA conferences, speaking before business groups, introducing eminent lecturers, dedicating new hospitals, giving speeches of welcome at medical meetings, haranguing County Medical Societies, addressing students and faculty at both high schools and Universities, orating at luncheon clubs, showing myself on television, and more that I care not to recall. The list I give you, not as a boastful tally, but rather in a spirit of rueful, retrospective horror. Nonetheless it is a requisite part of the job and often a pleasant one, for the President of the Arizona Medical Association is received everywhere with uniform respect and cordiality — not for himself but as the voice of the physicians of the State. Voice and stomach I may say, after having been on the roast beef and martini cir-

cuit this long. Your President needs more than anything a durable digestive tract and a willing larynx.

No President can close his year without an expression of the deepest personal gratitude to our Executives, Robert Carpenter and Paul Boykin, and to our highly efficient and equally decorative secretarial staff. I do not know what the doctors of Arizona have done to deserve Bob Carpenter; no body of men has ever been served so efficiently and so staunchly. There has never been anyone like him, and there never will be again. This Association would not be half what it is without him. For myself I can only say that my job would have been insupportable without the expert knowledge and wisdom of Bob Carpenter, your servant and my friend. Let me also pay an overdue tribute to our attorney, Edward Jacobson. No medical association has access to better legal advice than we do. Someone once asked what Arthur Goldberg, now Secretary of Labor, then general counsel of the AFL-CIO, did for George Meany. The answer was: he thinks for him. Bud Jacobson thinks for us, in areas where we are the laymen. But even more — he adds to his anxious superintendence of our corporate transactions a very real affection for the doctors of Arizona. I can at least assure him that the feeling is returned unstintingly.

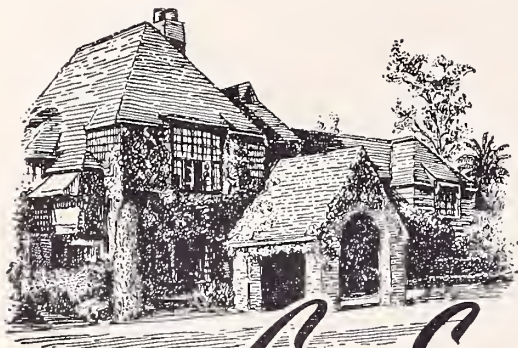
Most of all I want to express my appreciation to you, the men who spend their time and substance on behalf of organized medicine. For purposes of publication in *Arizona Medicine* I have entitled this address "The Political Doctor", referring both to my role and to yours. The designation would, I know, be used by some in disparagement. To me it is one of esteem. The house of medicine has many mansions; there is place in it for the general man and the specialist, the private practitioner and the academician, the investigator and the administrator. There is a place of honor in it for the physician who adds to his other concerns the politics of medicine. Politics is the practical social science by which solutions are devised for the urgent needs of mankind. All the research discoveries of the lab-

oratory, all the advances in practice, all the modernization of the health sciences would never reach the sick if medical politicians did not work unflaggingly at the framework through which they are made accessible to the public. In Arizona the men who are the bellwethers on the executive side of medicine are happily also counted among the leaders in clinical and scientific medicine. If one conclusion has been pressed home to me this year it has been my persuasion that there are many physicians in this Association who would make a national mark, if only they were active in a wider sphere. Beardsley Ruml once offered the opinion that reputation depended as much on a man's arena of operation as on his ability. I do not wish to infer that I have before me, in the familiar words of Thomas Gray's "Elegy Written in a Country Church Yard," a collection of "mute inglorious Miltons" or "guiltless Cromwells". But I do want to express the hope that you will not only continue your activity on behalf of medicine in Arizona but will extend your scope into national fields or into other, non-medical areas. Meanwhile, of all the doctors of the State, I salute you first.

I hope the retiring President may be allowed a final moment of sentiment. I used to smile — a knowing, psychiatrist's sort of a smile — when I read of statemen who avowed that their lives were bound to and had taken meaning from the assemblies in which they had long sat. One remembers such remarks from Edmund Burke and Daniel Webster, Sam Rayburn and Winston Churchill. I do not smile now, for in a small way I have come to know what they mean. My own thoughts have been increasingly devoted to this House for ten years — two as a delegate, five as its Speaker, one each in ascending the chairs of executive office. I unabashedly love this House, its ways and its atmosphere, its parliamentary manners and its memorable speeches, its traditions and its companionship. And now I can, at last, thank its members, from down deep in my heart, for the gift they have given me, this year as President of our Association, the most rewarding experience of my professional life.

72% of the total population and 49% of those over 65 today have voluntary health insurance.

(from AMA's publication, "The Cost of Medical Care")



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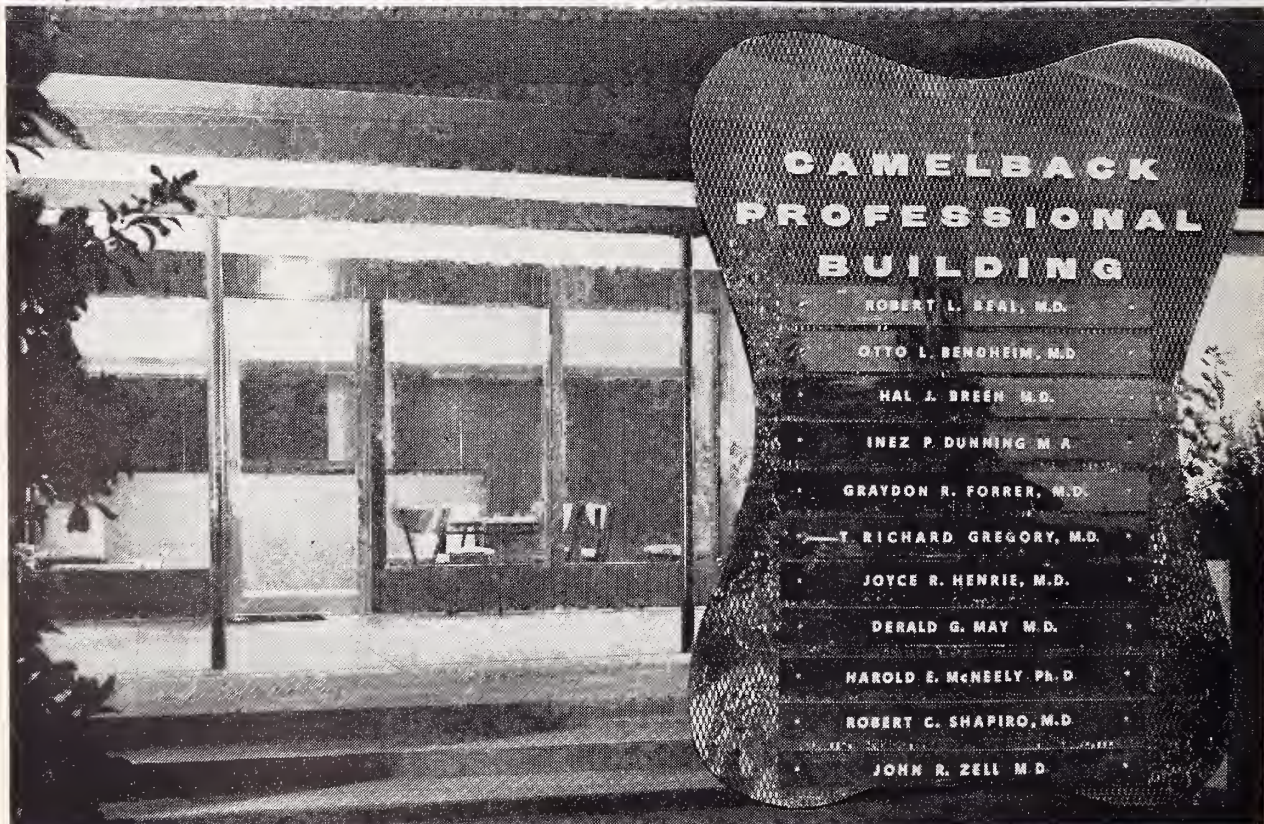
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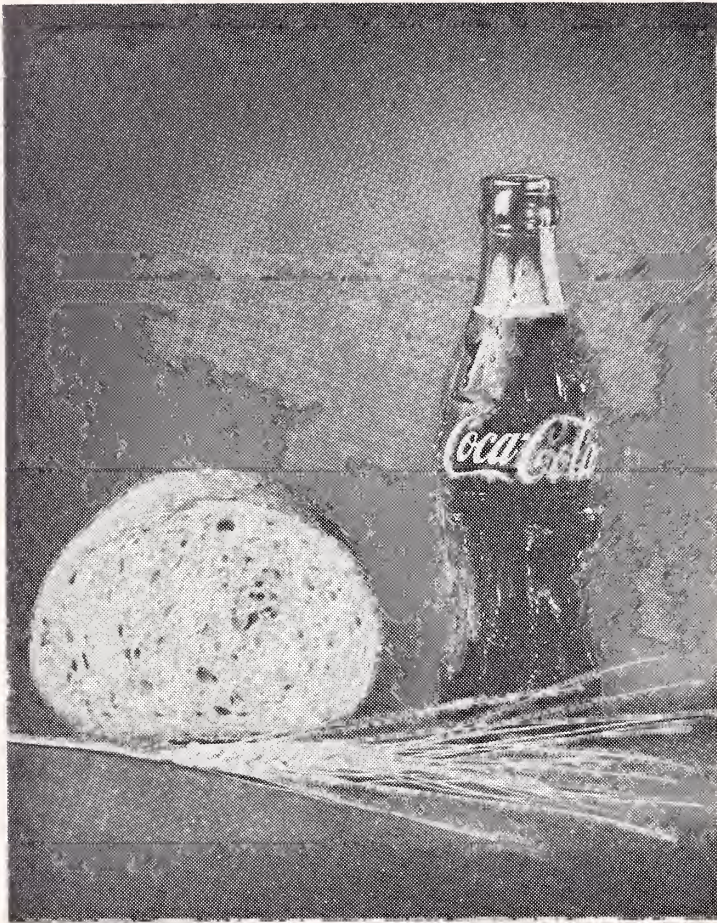
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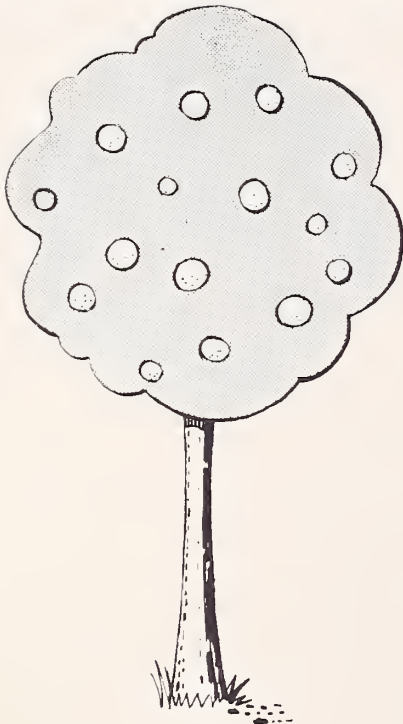
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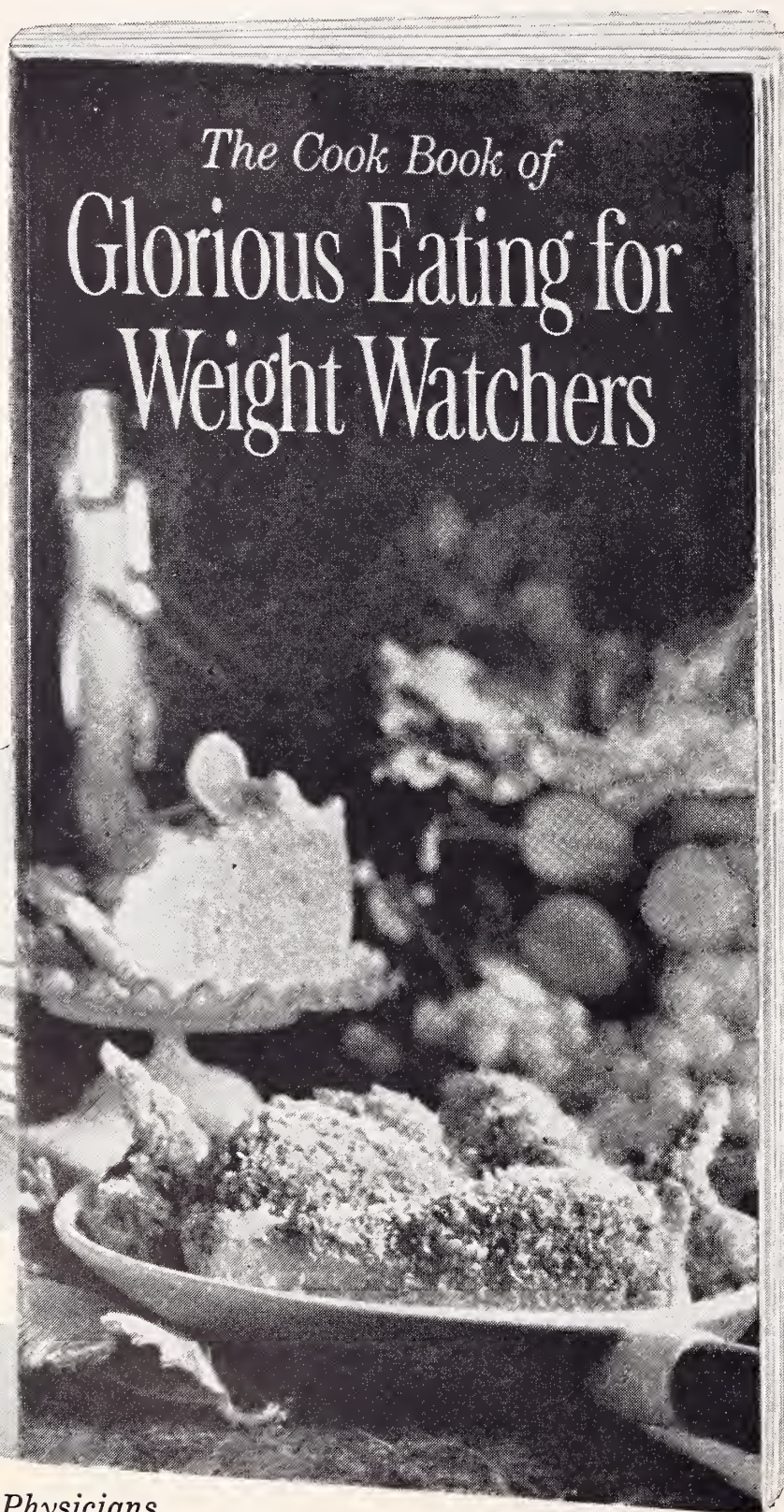
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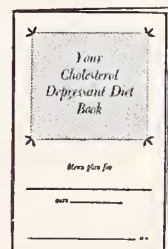
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M.D.

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Editorials

Doctors In Court

More and more the courts require the appearance of physicians as expert medical witnesses. The psychiatrist is called almost weekly to testify to sanity hearings, juvenile or criminal cases. The orthopaedist is required to detail his treatment and prognosis in the litigation that seems to follow every automobile accident. The surgeon and the general practitioner can expect to be examined and cross-examined on as widely

varied a number of matters as they have patients. Often, in contested cases, both sides will accept the testimony of a reputable physician, but in many cases each side feels the necessity to call its own experts, thus increasing the burden on the medical profession.

Although the courts, at least in Arizona, bend every effort to get the doctor in and out of the courtroom as quickly as possible, nevertheless

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VOL. 18 MAY NO. 5

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CONTRIBUTIONS

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Exclusive Publication — Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
7. Reprints will be supplied to the author at printing cost.

Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association. The opinions of the Board of Directors may be sought in the published proceedings of that body.

the busy practitioner, who can ill afford to spare it, is required to spend a considerable amount of time in court.

Can this be avoided? Under our system it is doubtful. We are proud of our judicial system which guarantees to every person his day in court, and his right to present his case for determination by a jury of his peers. Implicit in this presentation is the right of the trier of the facts, whether it is judge or jury, to have the opportunity to see and hear the witness, and the right of both sides to have the opportunity to examine and cross-examine the witness.

The lawyer seeking to present the case of his client in the best possible light is never satisfied to present the medical picture by a written report, or to recite to the jury or court the findings of a medical board or committee. Suppose the medical issue to be determined, as is often the case, is whether the plaintiff has a permanent disability and, if so, of what extent. A question like this is not susceptible of a single answer like one in arithmetic. In law or medicine it is rare for anything to be all black or all white. It is the lawyer's job to develop in court the subtle shadings that support the contentions he advocates. This requires the witness' physical presence before the jury or court.

In Denmark, we are told, there is a state-appointed medico-legal council, paid a salary from public funds, which gives opinions to any litigant requesting them. The Council may be questioned by attorneys in advance, but their opinions are not challenged in court. This eliminates the appearance of the physician in the courtroom.

Besides the reasons suggested above, this system would be unworkable in this country. No lawyer or client would be satisfied with anything less than the best and, public servants being notoriously underpaid, it is obvious that the best would not be available at the salary offered.

Lastly, this would be one more step, would it not, in the direction of socialized medicine?

Robert S. Tullar
Attorney-at-Law
Tucson, Arizona

WHICH WAY?

The Editorial philosophies expressed in your Journal were challenged by A.J.B. under the title, "The Hornets Nest". The beliefs of A.J.B. are the antithesis of some of the Editorial Board.

A.J.B.'s censorious cynicism begins with the statement — "The Editorial pages of the September issue of 'ARIZONA MEDICINE' contained a peculiar hodge-podge of emotionalism and incompletely evaluated opinions, but with an undercurrent of good intentions." In support of his contention he quotes — "Desire it or not, there is a gradual socialization of the U.S. This can be prevented in medicine by governing ourselves". He comments "We cannot 'prevent' the trend of events (socialization) any more than King Canute could stop the tides." I feel that self discipline is paramount to self government and is the basic principal of our government. The author's (A.J.B.) apparent willingness to complacently passively accept the trend toward a Marxist's state is further exemplified by his statement — "It is a strange anachronism, this cry against Federal 'interference' in our medical life. We drive on Federal highways, we use the Federal mails, we rely on our Federal (National) armed forces, we are proud of our Federal parks." Because we are proud of our Federal parks, would we all want to live in Federal housing? Because we use Federal mails, would we be pleased by Federal transportation? We rely on our armed forces and are proud of our service academies, but would we want Federal kindergardens?

Ours is a government of balanced powers, one in which both the majority and the minority are protected by the Republic concept, rather than rule by the will of the majority — the democratic concept. Our government, the most successful system ever evolved, assures equality and individual freedom under specified laws with help for those who cannot help themselves, and for all others, the maximum opportunity to help themselves. Ours is not, and should not become, one which because "we are proud of our Federal parks" we delegate all controls to the Federal government.

It is better that we guide our destinies by

knowledge gained by historical facts. We should be cognizant that historians have reminded us of the teachings of history as recently repeated by Harry T. Everingham — "History shows that man moves in cycles. As several great scholars have pointed out, the cycles go something like this: (1) People go from chains to spiritual faith. (2) With spiritual faith they gain courage. (3) With courage, they gain liberty. (4) With liberty, people produce abundance. (5) With abundance, they develop selfishness. (6) From selfishness, they go into complacency. (7) From complacency, they sink into apathy. (8) From apathy, they go into dependence. (9) From dependence, they go into bondage." With this knowledge should we with inaction acquiesce to a philosophy which is stated — "We cannot 'prevent' the trend of events (socialism) — " and thus allow the degradation of our society?

The quotation of A.J.B. of Rene J. Dubos to the effect that the control of cholera, water supplies, yellow fever, and industrial smokes was delegated to the government, infers that because this is good, all things should be thus transferred to Federal control. Mr. Dubos cites these as evidence of the need for further socialization of medicine. The control of the health problems of our nation must be patterned and adjusted to the basic precepts of our constitution. As in all other social endeavors, there are spheres of health problems which are best accomplished by centralized governmental control and also those spheres which are more effectual when reserved for the individual direction. The quotation from Rene J. Dubos fails to give medicine any credit for their prodigious studies and efforts in the control of cholera, tuberculosis, yellow fever, etc. Yes, Medicine has called for governmental control by legislation in each and every instance where such would be for the greatest good. The medical profession has been in the front line in the war to eradicate communicable as well as non-communicable diseases. It is the doctors of medicine who have been chiefly responsible for the enactment of legislation to control disease, legislation to raise the quality of medical education, and to increase and control the quality of medical care. Lord Bryce has correctly summarized the historical background of the medical profession in his statement "Medicine is the only profession that labors incessantly to destroy the reason for its own existence."

In spite of the "Science" report which attacked the AMA for their use of the Wiggins-Schoeck survey of the medical status of the aged, if one restudies these authors' rebuttal (New York Times, October 2, 1960; AMA News, October 31, 1960) one is at once convinced that it was not "... dubious propaganda gimmicks" or "cheap tricks . . ." which should impair the integrity of our profession.

Although we acknowledge that there are some spheres of the health care which are rightly assigned to the Federal government, there are also many phases which will continue to be in the best interest of all if left in the individual domain.

This editor seems indeed to have stirred up a "hornet's nest" but it is my hope that the hornets are "mad" enough to sting the more complacent members of our profession into actively working to stem the tide toward socialized medicine — indeed socialism in general — before the time for action is past and our superior system for the practice of medicine deteriorates by governmental control as exemplified in other parts of the world.

Leslie B. Smith, M.D.

... call a fig a fig, a spade a spade

A recent issue of Today's Health magazine carries an extensive discussion of the hucksters of quack medicine and how they flourish because of the public gullibility and legal loopholes.

"Mechanical quackery is believed to make up a substantial portion of the \$610 million or so paid to medical charlatans annually."

What action do we take as a society to oppose these? Little. We avoid that which might precipitate libelous action. It would be better to investigate, possibly at times through co-operation with the Public Health Department. Such inquiry should include the M.D. as well as the non-medic. We must clean our own house. For while no one wants to throw the first stone, at times stones need to be thrown.

Darwin W. Neubauer, M.D.

STANDARDIZED FEE SCHEDULE

What is the opinion of the members of The Arizona Medical Association to the establishment of a published fee schedule, either a single schedule in dollars, the use of the unit system, or multiple schedules as now published by Blue Shield but extending beyond their present 80 Series?

Are we at fault in rejecting a fee schedule which has been so earnestly requested by the insurance companies as their only means of being able to supply satisfactory insurance coverage?

We encourage you to write this office and express your opinion.

Darwin W. Neubauer, M.D.

LETTERS TO THE EDITOR

Darwin W. Neubauer, M.D., Editor
Arizona Medicine
720 North Country Club Road
Tucson, Arizona

Dear Doctor Neubauer:

As a member of the Board of the Arizona Children's Colony, I would like to extend an invitation on behalf of the Board and its superintendent to Arizona physicians to personally visit the Children's Colony. This is located just east of Coolidge on the main road between Phoenix and Tucson. Drive to the main office and introduce yourself as an interested physician and ask for the superintendent. He or his representative will be happy to show you the Colony. When you have seen it, I would be most happy to have you write me and give me any suggestions or criticisms which you may have.

I believe the medical profession can do a great deal to further the care of the handicapped children in the state. Your knowledge of the available facility and its problems is one of the first steps. Physicians can do much in influencing lay opinion if they are informed.

Sincerely yours,

Hugh C. Thompson, M.D.

Editor

Arizona Medicine
1021 Central Towers
Phoenix, Arizona

Re: June 1960 — Vol. 17 No. 6

Arizona Poisoning Control Information Center
Gentlemen:

We read with interest the "toast vs. charcoal" article in the June, 1960 issue, and applaud your effort to spread the "gospel" of poisoning control via a regular column.

However, we would wonder in what circumstances you would want the family doctor to use "universal antidote", instead of or before calling you, and in what circumstances would you prescribe universal antidote? Our teaching is that:

1. In *all* poisonings the Control Center should be called (preferably by the family physician).
2. A professional must then decide whether the patient should be seen at a treatment facility.
3. The treatment facility either prescribes *nothing* or indicates the *specific* therapy.

The information needed for decisions regarding therapy can usually be obtained from the Public Health Service card file and numbered memo file, the text *Clinical Toxicology of Commercial Products*, The New England Journal of Medicine's, *Toxic Hazards*, Goodman and Gilman's *Pharmacologic Basis of Therapeutics*, recent medical literature, and the recorded experience of the local center. Rarely are other sources needed. Almost all textbooks about poisoning are inadequate for clinical use, and "first aid" sources are to be condemned.

Respectfully Yours,

FREDRIC B. ROTHMAN, M.D.
CHIEF RESIDENT PEDIATRICS

March 20, 1961

Darwin W. Neubauer, M.D.
Editor, ARIZONA MEDICINE
720 N. Country Club Road
Tucson, Arizona

Dear Mr. Neubauer:

We have received the letter from Dr. Frederic B. Rothman concerning the article entitled "Use

of Burned Toast as a Substitute for Activated Charcoal in the 'Universal Antidote', which appeared in *Arizona Medicine*, Vol. 17, No. 6, June, 1960.

First, it should be emphasized that the intent of this article was only to point out the fallacy of the use of burned toast as a substitute for activated charcoal in the treatment of poisoning and not to evaluate the use of activated charcoal or the universal antidote. It is well known that many reference sources suggest the use of these preparations in the treatment of certain poisonings. Since some of them state that burned toast is a satisfactory substitute for activated charcoal (e.g., Arena, J.M., *Clinical Symposia*, 12:5, 1960, and "First Aid Textbook", The American National Red Cross, 4th edition, Doubleday & Co., Inc., Garden City, N.Y., 1957, p. 53), it seemed important to call attention to conclusive scientific evidence which proves this statement to be incorrect (Lehman, A. J., *Quart. Bul. Assoc. Food & Drug Official of U.S.*, 21:210, 1957).

We concur with Dr. Rothman that information needed for decisions regarding therapy in poisoning can often be obtained from such important reference sources as (1) the Public Health Service (National Clearinghouse for Poison Control Center's) card file; (2) Gleason, M. N., Gosselin, R. E., and Hodge, H. C., *Clinical Toxicology of Commercial Products*; (3) Goodman, L. and Gilman, A., *The Pharmacological Basis of Therapeutics*. Indeed, each of the 20 Arizona Poisoning Control Treatment Centers possesses the card file and the two textbooks. In answer to Dr. Rothman's question, "... in what circumstances would you prescribe universal antidote?", we would like to refer to the above references.

- (1) Public Health Service (National Clearinghouse for Poison Control Center's) card file recommends the use of universal antidote or activated charcoal in the treatment of poisoning from any of the following 12 trade-name products:

1. ABSC Pills
2. Black Leaf 40
3. Imp Soap Spray
4. Killer Katz Mice Seed
5. Kilmicc

6. Lee's Gizzard Capsule
7. Nicotrol
8. Nicotrox 10-X
9. O.K. Plant Spray
10. Senco Poison Canary Seed
11. Senco Poison Oat Kernels
12. Tendust

- (2) Gleason, M. N., Gosselin, R. E., and Hodge, H. C., *Clinical Toxicology of Commercial Products* recommends the use of universal antidote in the treatment of poisonings from the following substances:

1. Amanita Toxins (see page 111)
2. Mercury (see page 154)
3. Nicotine (see page 161)
4. Pyrethrum (see page 170)
5. Salicylates (see page 173)
6. Strychnine (see page 177)

- (3) Goodman, L. and Gilman, A., *The Pharmacological Basis of Therapeutics*, p. 1020, presents the following general statement concerning the use of activated charcoal (chief ingredient in universal antidote) in the treatment of poisoning: "Charcoal has a limited usefulness as an antidote in cases of poisoning, adsorbing the toxic substance and thus retarding its absorption until gastric lavage can be performed".

Finally, it is of interest to note that accompanying the tentative standards for poison control centers (accepted and approved at the annual meeting of the American Association of Poison Control Centers, Chicago, Illinois, October 18, 1960) is a list of recommended antidotes among which is the universal antidote suggested for the treatment of unknown poisons. Included in this list are animal charcoal, magnesium oxide, and tannic acid for the preparation of the universal antidote.

We hope that the above comments meet with your approval. Please inform us if we can be of any other assistance in this matter.

Sincerely yours,

Albert L. Picchioni, Ph.D.
Professor of Pharmacology and
Director, Arizona Poisoning Control Program
The University of Arizona



an
added
measure
of
protection
for
little
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against relapse
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pediatric drops
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● full antibiotic activity ● lower milligram intake per dose ● up to 6 days' activity with 4 days' dosage ● uniformly high, sustained peak activity ■ **syrup** (cherry-flavored), 75 mg./5 cc. tsp., bottles of 2 and 16 fl. oz. Dosage: 3 to 6 mg./lb./day—in four divided doses. **pediatric drops**, 60 mg./cc., 3 mg./drop, 10 cc. bottles with calibrated dropper. Dosage: 1 to 2 drops/lb./day—in four divided doses.

PRECAUTIONS: As with many other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs discontinue medication. Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under observation.

Request complete information on indications, dosage, precautions and contraindications from your Lederle representative, or write to Medical Advisory Department.

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brand of psyllium hydrophilic mucilloid

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in peritonitis

Supplied: Capsules, each containing Panmycin* Phosphate (tetracycline phosphate complex), equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin,* as novobiocin sodium, in bottles of 16 and 100.

Adult dosage: 2 capsules four times a day.

Side effects: Panmycin Phosphate has a very low order of toxicity comparable to that of the other tetracyclines and is well tolerated clinically. Side reactions to therapeutic use in patients are infrequent and consist principally of mild nausea and abdominal cramps.

Albamycin also has a relatively low order of toxicity. In a certain few patients, a yellow pigment has been found in the plasma. This pigment, apparently a metabolic by-product of the drug, is not necessarily associated with abnormal liver function tests.

Urticaria and maculopapular dermatitis, a few cases of leukopenia, and agranulocytosis have been reported in patients treated with Albamycin. All of these side effects rapidly disappeared upon discontinuance of the drug.

Caution: Since the use of any antibiotic may result in overgrowth of nonsusceptible organisms, constant observation of the patient is essential. If new infections appear during therapy, appropriate measures should be taken.

As with any serious infection, therapy of peritonitis with Panalba or other antibacterial agents is adjunctive to surgical procedures and supportive therapy.

Inflammatory process of the peritoneum

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In Memoriam

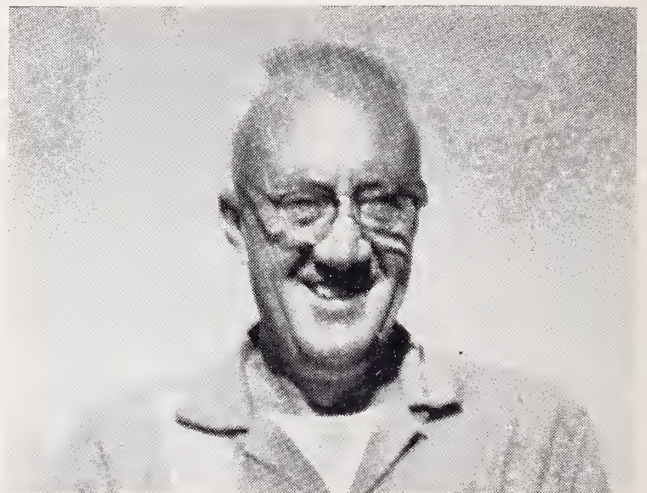
Kenneth G. Rew, M.D.

1905 - 1961

We mourn the loss of Dr. Kenneth G. Rew who died on January 18, 1961, of a coronary thrombosis.

Dr. Rew was born on July 15, 1905, in Davenport, Washington. He obtained his B.A. degree from the University of Oregon in 1927 and his M.D. degree from the University of Oregon Medical School in 1931. From 1931 to 1932 he took his internship at the Swedish Hospital, Seattle, Washington. In 1931 and 1932 he did his postgraduate training in psychiatry at the Henry Phipps Psychiatric Clinic, Baltimore, Maryland. He served as an Assistant Physician at the Eastern Oregon State Hospital until 1937. He completed his psychiatric residency at the Payne Whitney Psychiatric Clinic, New York Hospital, from 1937 to 1938. Dr. Rew was certified by the American Board of Psychiatry and Neurology in 1938 and was recently elected a Fellow in the American Psychiatric Association. He was an instructor in psychiatry at Cornell Medical College from 1937 to 1939, and an instructor of psychiatry and an Assistant Professor of psychiatry, University of California Medical School from 1939 to 1947.

Dr. Rew entered the Army reserve on June 15, 1931. From 1942 to 1943 he was with CARTC as Chief of Mental Hygiene Clinic. From 1943 to 1944 he served with the 98th Infantry Divi-



KENNETH G. REW, M.D.

sion as Division Psychiatrist and from 1944 to 1945 at Tripler as Chief of the NP Section. He was recalled to active duty during the Korean War and from 1951 to 1952 was stationed at the U.S.A. Hospital, Fort Bragg, as Chief of the NP Service. He retired from the Army Medical Corps with the rank of Lieutenant Colonel on June 30, 1956.

Dr. Rew came to Phoenix, Arizona, and joined the Veterans Administration Hospital as Chief of the Mental Hygiene Clinic in 1947 where he remained until 1953 except for the time spent in the service from 1951 to 1952. From 1953 to 1954 Dr. Rew was at Winter VA Hospital in To-

peka, Kansas. Here he was Chief, Physical Medicine and Rehabilitation, Assistant Chief of Professional Services and Acting Chief of Professional Services. He was active in the training program of psychiatric residents in the Menninger School of Psychiatry. He returned to Phoenix, Arizona, to enter full-time practice of psychiatry and neurology in November, 1954. Dr. Rew also conducted teaching seminars on psychiatry and psychotherapy for the staff of the VA Hospital as well as being active in matters pertaining to the field of psychiatry in the Maricopa County Medical Society. He was an active supporter in the formation of the Arizona Psychiatric Society and at the time of his death was chairman of a committee to study the relationship of psychiatry with clinical psychology and psychiatric social work. He had also recently started a seminar for the psychiatrists in this area to meet and continue the study of psychoanalytic theory and concepts. Dr. Rew was on the staff of the Barrows Neurologic Institute.

It is evident that Dr. Rew's interests covered a wide range including administration, clinical work and teaching. He had a remarkable capacity to keep abreast of new developments as was manifest in his teaching and in his private practice. He was truly a scholar who loved to share his knowledge and understanding with his fellow workers. His energies and interests were stimu-

lating to those who came in contact with him. As a teacher he received some of his greatest pleasures and satisfactions.

His wife, Esther Rew, resides in Phoenix. A married daughter, Mrs. Linda Davidson, lives in Pasco, Washington. A daughter, Joan, attends college in Cheney, Washington. His son, Stuart, is in military service in Djakarta.

Those close to Dr. Rew knew him as a person who lived a "full life" with the enthusiasm and ability to have fun and enjoy a variety of interests. His zest was infectious to his friends and colleagues. He enjoyed sports and outdoor activities and he was an active participant up to the time of his death in fishing, boating, archery, hunting and camping. He was also a student and teacher of the great out-of-doors to those who were fortunate enough to accompany him. He was fond of music and especially jazz.

To those who knew Ken there will always be the feeling that they had a true friend in him and the qualities of warmth, humility, compassion, honesty, and freedom from malice or pettiness will long be in their thoughts. His patients, friends, and colleagues will miss him and forever hold a fond memory and a sense of loss at his premature and untimely death.

James M. Kilgore, Jr., M.D.



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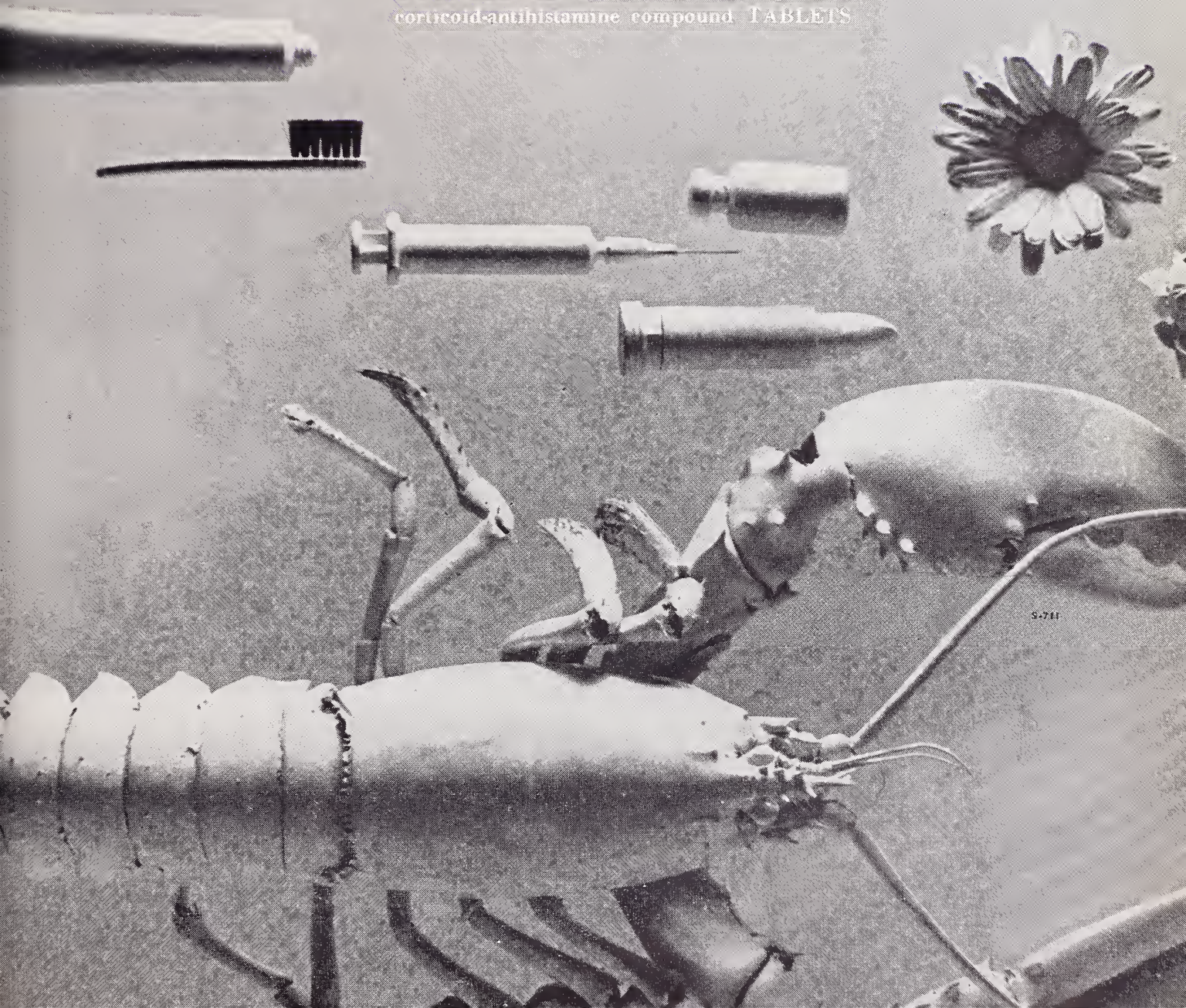
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Topics of Current Medical Interest

PUBLIC HEALTH IN ARIZONA — 1959-60

In the September-October issue of "Arizona Public Health News" appears the annual report of the Arizona State Department of Health for the fiscal period 1959-60. In the space of some 48 pages is given a brief account of the varied activities of the Department.

Dr. Salsbury, the Commissioner, in his section of the report, finds a number of sources for satisfaction in the accomplishments of his Department in recent years. The State Public Health Laboratories in Phoenix with branches in Tucson and Flagstaff are now adequately housed, staffed and equipped; increased State funds are now available through the Departments of Health and of Welfare for use in the control of tuberculosis; staff salaries, while still low, have been considerably improved; programs of dental public health, veterinary public health and of multiphasic screening for chronic diseases have been launched; new hospitals, nursing homes and clinics have been built or improved; the interest of the medical and dental societies in public health has become more active; and finally, the Legislature has shown an increased measure of interest in the affairs of the Department.

From the reports of the several divisions of the Department there are a number of interesting points:

During the period October 1, 1957 to June 30, 1960, a total of 47,572 blood samples from around the State were tested to determine high sugar levels. Of these, 1689 gave suspicious results. A total of 934 individuals were referred to their private physician for further evaluation. At least, 278 were considered by their physicians to be suffering from diabetes, not previously recognized.

There were 34,483 births in the State during the year. Thirteen mothers died as a result of child birth. There were 438 fetal deaths and 1145 babies who died during the first year of life.

The Public Health Laboratory examined the heads of 995 animals suspected of having rabies. Of these, rabies was confirmed in only 13 instances.

The number of cases of syphilis reported in the infectious stages showed an increase of 118 over the previous year. Ten per cent of these new cases of infectious syphilis were among teenagers.

The increasing importance of air pollution as a sanitary problem in the urban areas of Arizona is emphasized.

Tuberculosis continued to be a problem of major importance, 808 new cases having been reported in the State during the year.

On the whole this report shows progress, but one is impressed with a lack in the State Health Department in keeping the public well informed on important health problems. It is unfortunate that this report in many sections shows the want of clear writing, so that it is not possible to learn from it just what has been accomplished during the year.

Hugh H. Smith, M.D., M.P.H.

BOARD OF MEDICAL EXAMINERS STATE OF ARIZONA

The Board of Medical Examiners of the State of Arizona at a regular meeting held Saturday, January 21, 1961, issued certificates to practice medicine and surgery in this State to the following doctors of medicine:

ADAMS, Milton Dean (GP), 2850 Madison, Yuma, Arizona. AHSTROM, JR., James Peter (OrS), 555 Monroe Avenue, River Forest, Illinois.

BALDAUF, Leonard Clair (GP), 1001 N. Swan Road, Tucson, Arizona. BAXTER, Allison Gail (GP), 6 West Wilson St., Batavia, Illinois.

BLUMGREN, John Edgar (GP), 114 E. 4th St., Vinton, Iowa. BODASKI, Albert Alexander (GP), Harmony, Minnesota. BOS, Louis Henry (GP), 1513 West Thomas Road, Phoenix, Arizona. BROWN, Norman Baillie (ObG), Maricopa Co. Gen. Hosp., Phoenix, Ariz.

CASEY, JR., Ira LaMont (GP), Arizona State Hospital, Phoenix, Arizona. CHARNETSKY, Robert Celeste (GP), 3919 W. Encanto Blvd., Phoenix, Arizona. COOPER, William Leroy (S), 275 Paw Paw Ave., Coloma, Michigan. CREW, Philip Ives (ObG), 1911 1st Ave., S.E., Cedar Rapids, Iowa.

DEISSLER, Edgar James (Ind), Douglas Hospital, Douglas, Arizona. DENT, Townsend Edward (GP), 4823 E. Mulberry Dr., Phoenix, Arizona. DI CENSO, Dino (GP), 1106 W. Glenrosa, Phoenix, Arizona. DWYER, Bernard Blake (GP), 113 Main Avenue, Clinton, Iowa.

FELDMAN, Martin Harold (N), Jefferson Med. College Hosp., Philadelphia, Penn.

GILBERT, James Marvin (GP), 1013 Litchfield Road, Goodyear, Arizona.

HALEY, Jack Arnold (GP), 140 Litchfield Road, Goodyear, Arizona. HARTIG, Otto Joseph (GP-GS-Pr), 907 Morgan Avenue, Downs, Kansas. HILBURN, Lynn (GP-GS), 119 S. Marshall St., Henderson, Texas. HOFFMAN, Clifford Joern (U), 116 N. Tucson Blvd., Tucson, Arizona.

IRWIN, Robert Steele (U), 425 E. Wisconsin Ave., Milwaukee, Wis.

JAMES, Norman Alva (GP), 8321 N. Broadway, St. Louis, Missouri. JOHNSTON, Raymond Foidell (Pr), 3 West 27th St., Kearney, Nebraska. JOSSELYN, Irene Milliken (P), 5051

N. 34th Street, Phoenix, Arizona.

KNIGHT, James Harry (Anes), 4710 Elmwood Court, Riverside, California. KUHN, Joseph Lacsser (Anes), 88 West Utica St., Buffalo, New York.

LAING, Clarence Roland (Pcd), 1 North 12th St., Phoenix, Arizona. LAVERTY, JR., John Kearney (Path), 350 West Thomas Road, Phoenix, Arizona.

MORGAN, Donald Pryse (GP), Pima County Hosp., Tucson, Arizona. MOWREY, Jack Irwin (GP), McNary Hospital, McNary, Arizona.

NORRIS, George Loren (I), 1819 E. 12th St., Winfield, Kansas.

ORGAN, JR., Claude Harold (S), 914 Medical Arts Bldg., Omaha, Nebraska.

PATTERSON, JR., Fred Lindley (GP), Box 830, Duncan, Oklahoma. PHELPS, Malcolm Elza (GP), 203 S. Macomb Ave., El Reno, Oklahoma. POPPENS, Arthur Dean (GS), 777 South Main St., Princeton, Illinois.

RILEY, Richard Robert (GP), Kanab, Utah.

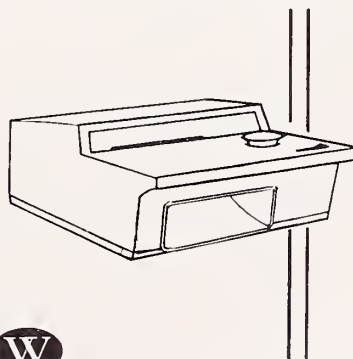
SAWREY, Kendall Roy (I), 2930 N. 38th St., Phoenix, Arizona. SCHAEFFER, Annabelle Vincow (Ped), 2534 Cass Avenue, Tucson, Arizona. SCHNEIDER, Stanley Harvey (I), 2530 E. Broadway, Tucson, Arizona. STEIN, Hermann Benjamin (Anes), 751 Williams St., Denver, Colorado.

TABER, Thomas Henry (PH), Maricopa Co. Gen. Hosp., Phoenix, Arizona. THORNTON, George Hugh Malcolm (I-GE), 800 North 1st Avenue, Phoenix, Arizona. TINSLEY, III, James Whitfield (Oph), 208 Seneca Road, Richmond, Virginia. TROOP, Donald Edward (GP), New Cornelia Hospital, Ajo, Arizona.

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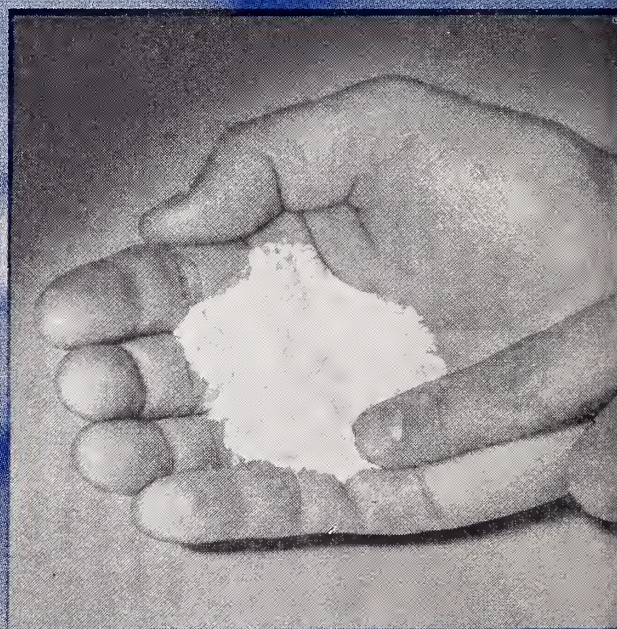
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mental iron, 10 mg.), 30.4 mg. • Iodine (as KI), 0.1 mg. • Calcium (as CaHPO₄), 35 mg. • Phosphorus (as CaHPO₄), 27 mg. • Fluorine (as CaF₂), 0.1 mg. • Copper (as CuO), 1 mg. • Potassium (as K₂SO₄), 5 mg. • Manganese (as MnO₂), 1 mg. • Zinc (as ZnO), 0.5 mg. • Magnesium (MgO), 1 mg. Supply: Bottles of 100 and 1,000.

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Future Medical Meetings

REGIONAL MEETINGS SUMMER — 1961

June 19-21, 1961

Survey of Human Genetics
University of Colorado School of Medicine
Denver, Colorado

June 28-July 1, 1961

69th Annual Meeting
Idaho State Medical Association
Sun Valley, Idaho

July 10-13, 1961

University of Colorado Medical Center
Course on Ophthalmology
Estes Park, Colorado

July 12-13, 1961

15th Annual Rocky Mountain Cancer
Conference
Denver, Colorado

July 17-20, 1961

New Mexico Chapter, AAGP
Ruidoso, New Mexico

July 24-28, 1961

American College of Chest Physicians
Course on Cardiopulmonary Problems
Denver, Colorado

July 27-29, 1961

University of Colorado Medical Center
Dermatology for General Practitioners
Denver, Colorado

August 10-12, 1961

Rocky Mountain Radiological Society
Denver, Colorado

August 21-25, 1961

Colorado University Medical School
Pediatrics
Estes Park, Colorado

August 23-26, 1961

Nevada State Medical Association
and Reno Surgical Society
Reno, Nevada

September 13-15, 1961

Utah State Medical Association and
Rocky Mountain Medical Conference
Salt Lake City, Utah

NATIONAL TUBERCULOSIS ASSOCIATION

The National Tuberculosis Association, the American Thoracic Society and the National Conference of Tuberculosis Workers will hold their joint annual meeting May 21-25, 1961 at the Netherland Hilton Hotel, Cincinnati, Ohio.

Biennial Western Conference on Anesthesiology
May 16, 17, 18, 1961
Sheraton Hotel — Portland, Oregon

WORLD CONGRESS OF PSYCHIATRY

The Third World Congress of Psychiatry, June 4-10, 1961 in Montreal, Canada, is being held at the invitation of McGill University and under the auspices of the Canadian Psychiatric Association. Meeting on the American Continent for the first time, the Congress is expected to attract some 3000 delegates from 62 nations. Representatives will come from psychiatry and such allied fields as general medical practice, psychology, biochemistry, nursing, sociology, anthropology, social work, and pharmacology.

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1961

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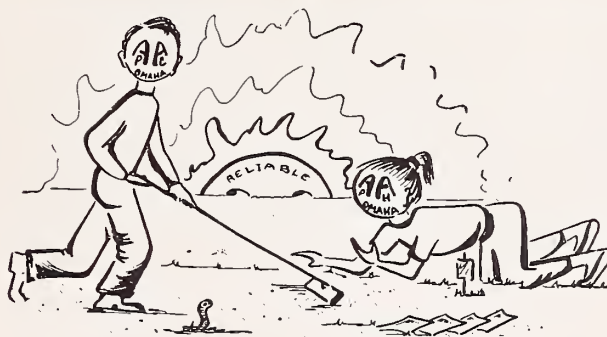
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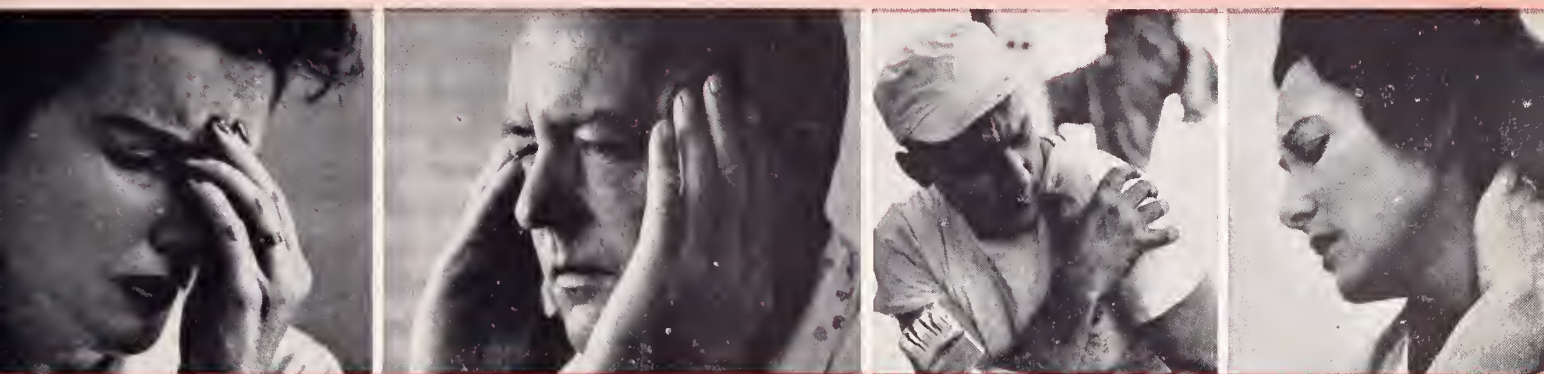
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1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.

2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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*Pomeranze, J.; J. New York
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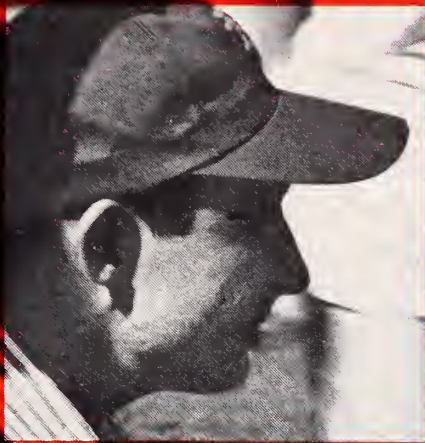
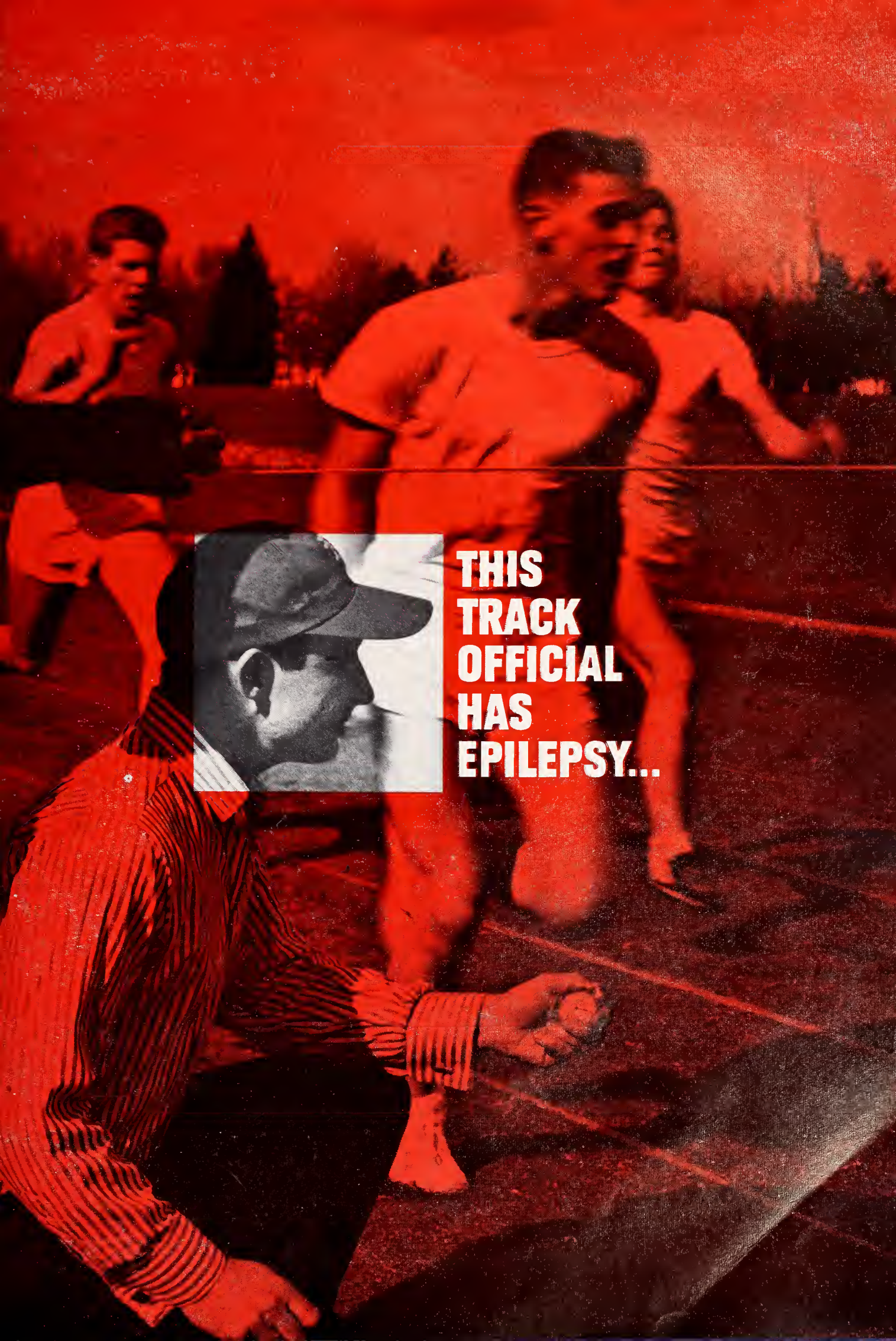
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(3) Crawley, J. W.: *M. Clin. North America* 42:317, 1958.

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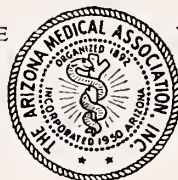
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Arizona Medicine

JOURNAL OF ARIZONA MEDICAL ASSOCIATION

MEDICAL SOCIETY OF THE UNITED STATES AND MEXICO

June, 1961



Vol. 18, No. 6

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References: 1. Lineback, M.: The Eye, Ear, Nose and Throat Monthly 39:342 (April) 1960. 2. Fuchs, A. M. and Maurer, M. L.: New York J. Med. 59:3060 (August 15) 1959. 3. Kreindler, L. *et al.*: Antibiotic Med. and Clin. Therapy 6:28 (January) 1959. 4. Schiller, I. W. and Lowell, F. C.: New England J. Med. 261:478 (September 3) 1959. 5. Edmonds, J. T.: The Laryngoscope 69:1213 (September) 1959. 6. Horstman, H. A.: Am. Pract. & Digest Treat. 10:96 (January) 1959.

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Arizona Medical Association Reports

Arizona Medicine

June, 1961



Vol. 18, No. 6

Presentation of A. H. Robins Co. Community Service Award

Dr. Smith, Ladies and Gentlemen:

This year the A. H. Robins Company has instituted a Community Service Award, to honor that physician in each state judged by his colleagues to have contributed most significantly to civic activities. I believe that Mr. E. Claiborne Robins, the President of the company, whose conception this is, intends that the distinction serve to correct a false public impression of the physician as an aloof and self-centered professional, by calling attention to his widespread interest and involvement in public affairs. Tonight we are presenting not only the first Community Service Award in Arizona but also the first in the nation, and the recognition is therefore particularly notable.

The recipient of the Award was selected by a special committee of the Board of Directors from a list of nominees forwarded by the various county societies. He is Dr. Delbert L. Secrist of Tucson. It is my pleasant charge to recount for you the accomplishments in civic concerns which made him the unanimous choice of the committee. I shall not mention his pro-

fessional achievements, which are many, for they were not the determinants. It is obvious, however, that only a physician respected for his professional attainments would be deemed eligible by his peers in the first place.

Dr. Secrist first burst into public acclaim as an All-American end at Washington and Jefferson College. The course of his future sturdy conservatism was predictable even in those days, for he had the prudence to be chosen *right* end.

His interest in athletics continued and he coached football and baseball at Wisconsin while going to medical school, and until recent years he officiated frequently on the University of Arizona gridiron. He has been a member of the Board of Directors of the Towncats, the University booster club, a member of the Board of Directors and President of the Tucson YMCA, and he is an active member of the Tucson Aquatic Officials Association, known nationwide for its efficiency in the management of swim meets and which he helped to found.

There are many other entries in the roster of Dr. Secrist's community interests. He is a member of the Board of Elders of his Church;



Dr. Delbert L. Secrist (second from left) receives the first A. H. Robins Community Service Award from Dr. Lindsay E. Beaton, retiring President of The Arizona Medical Association. On the right is Dr. Leslie B. Smith, new President of The Arizona Medical Association, and on the left is Mr. Alfred M. Gibbs, District Supervisor, of A. H. Robins Company. Dr. Secrist is the first person to receive this new award by the nationally known pharmaceutical company.

the district advisor of his fraternity at the University; a 33rd degree Mason and Past Master of his lodge; a many time worker on United Campaign Drives; a staunch PTA supporter.

This would be enough, but his major civic contribution has yet to be cited — his leadership in public education. Since 1950 he has been a member of the Board of Trustees of Tucson School District No. 1, and since 1955 its chairman. In 1952 he received a certificate for eminent work in the prevention of juvenile delinquency from the National Association of U. S. Deputy Marshalls, one of six Americans so designated. In 1958 the Arizona Congress of Parents and Teachers granted him life membership for his devotion to youth. He has been a member of the Governor's Committee on Education. And just this year he received a special citation from the Arizona School Board Associa-

tion for what was stated on the scroll to be an "outstanding contribution to the people of Arizona and the public schools of the state."

Tonight his colleagues in medicine add their acclamation to that of the citizens of Arizona. We see in him a large hearted man who has been able to extend the solicitude of the physician from the bedside, the consulting room, the operating table to the whole community. We find it very fitting that tonight's presentation should be first in Arizona, first in the nation.

It is with a tremendous sense of the justice of the award that, on behalf of the A. H. Robins Company, I present this plaque for distinguished community service to Delbert L. Secrist.

Deb, our congratulations, our admiration, our very great affection.

Lindsay E. Beaton, M.D.



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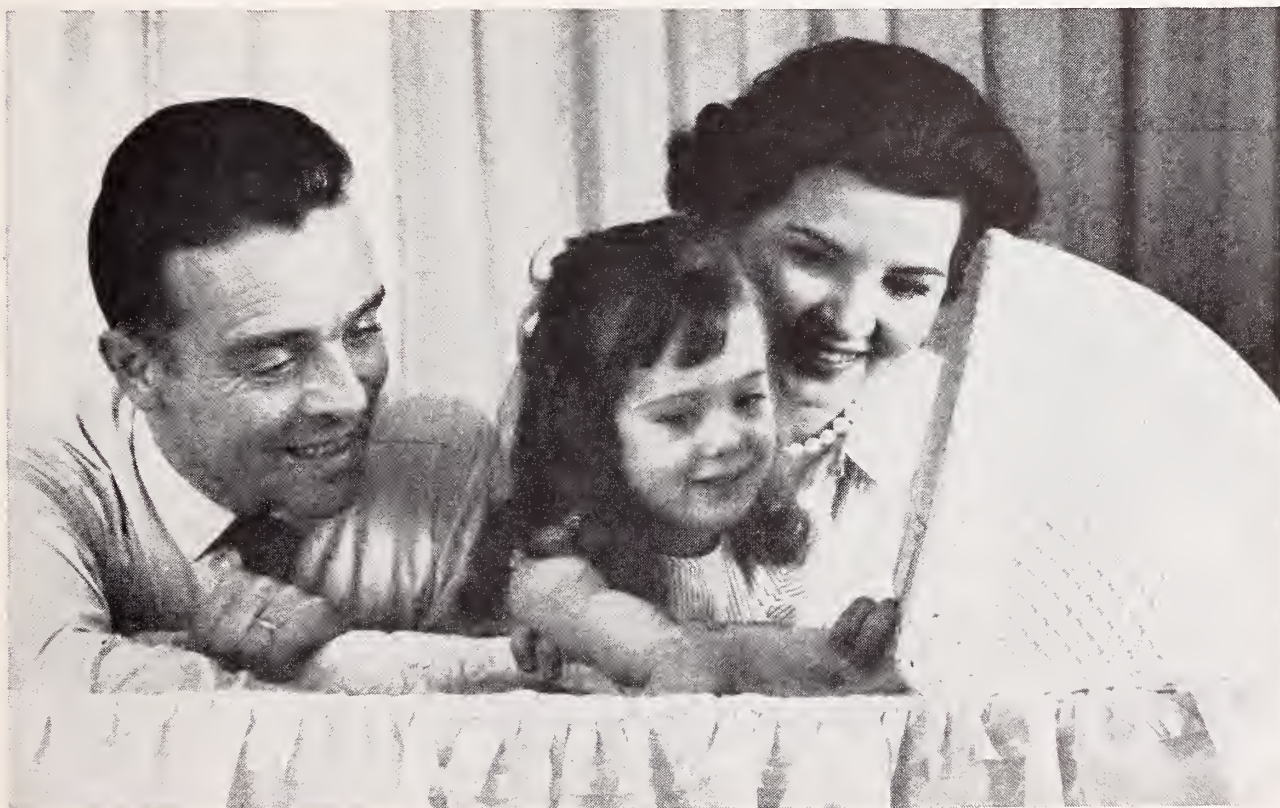
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Lanesta Gel has complete esthetic acceptance and is well tolerated.

*Gamble, C.J.: *Am. Pract. & Digest. Treat.* 11:852 (Oct.) 1960. See also Berberian, D.A., and Slighter, R.G.: *J.A.M.A.* 168:2257 (Dec. 27) 1958; Kaufman, S.A.: *Obst. and Gynec.* 15:401 (March) 1960; Warner, M.P.: *J.Am.M. Women's A.* 14:412 (May) 1959.

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“nutrition...present as a modifying or complicating factor in nearly every illness or disease state”¹

1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases “Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease.”²

2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958.

arthritis “It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . .”³

3. Fernandez-Herlihy, L: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.⁴ Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.⁵

4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases “Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult.”⁶

6. Overholser, W., and Fong, T. C. C. In Stieglitz, E. J.: Geriatric Medicine, 3rd edition, J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.⁷

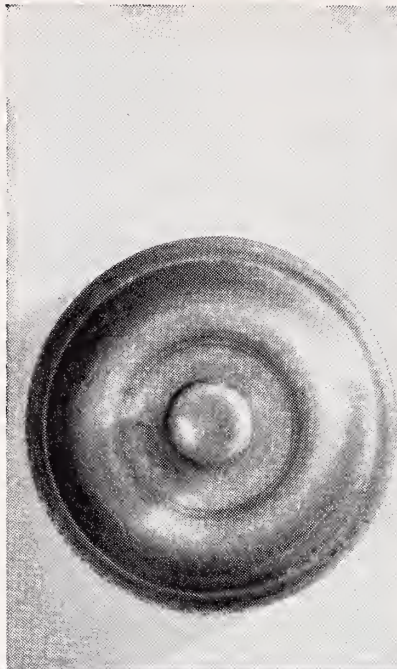
7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.⁸ “Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes.”⁹

8. Duncan G. G.: Diseases of Metabolism 4th edition W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

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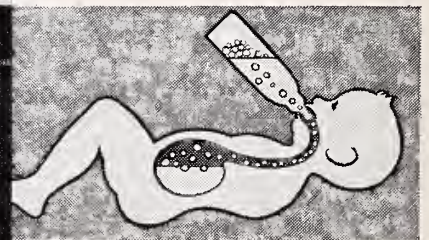
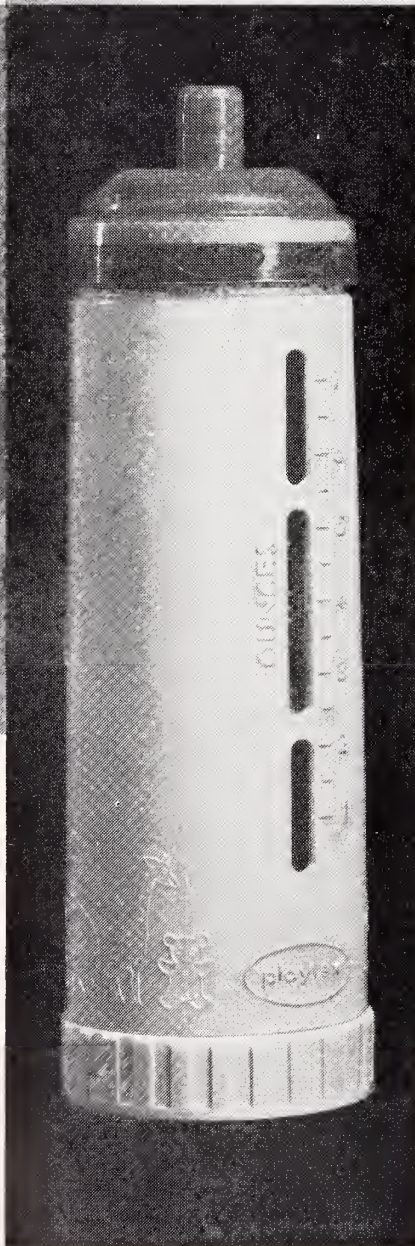
Natural nursing action nipple induces even sucking that dramatically lessens outside air swallowing and makes baby exercise his jaws. Designed to avert tongue-thrusting and other malocclusions not inhibited by conventional nipples.



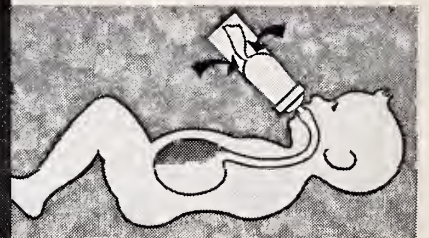
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Because the disposable bottle is pre-sterilized, it eliminates the possibility of contamination through improperly sterilized bottles.



With conventional bottle air has to get inside bottle for milk to come out. Nipple often collapses and baby has to suck harder, so more air gets into his stomach. Both overfeeding and underfeeding can ensue, along with the aerophagia and flatulence which can produce colic, spitting up, and after feeding distress.



Natural design nipple of Playtex Nurser assures even flow. Its pliable inner bottle contracts with atmospheric pressure as formula is consumed. Baby takes more nourishing formula, less swallowed air to cause discomforting spitting up and colic.

dramatically reduces spitting up and colic

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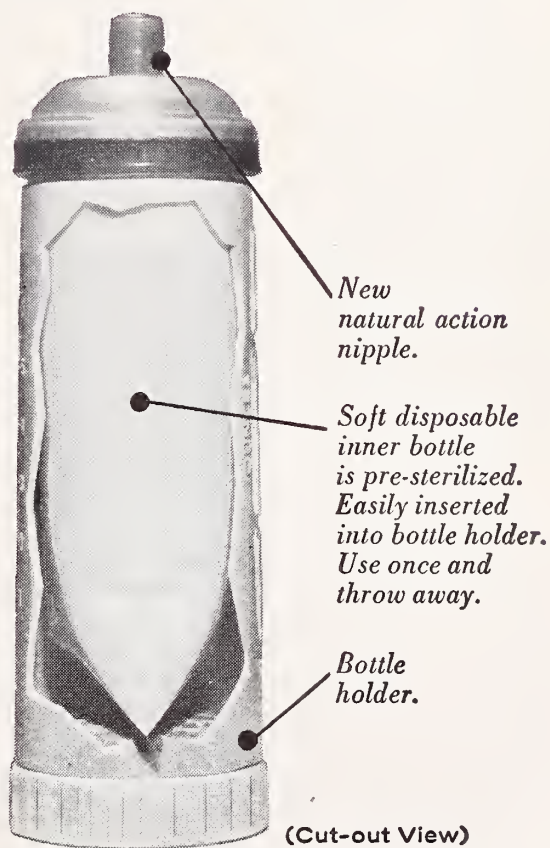
Because the outside atmospheric air pressure contracts the soft inner bottle, the formula is withdrawn more naturally than with conventional rigid baby bottles. There is no vacuum formation to set up air blocks. The natural-action nipple induces sucking which makes for less air swallowing, and less spitting up—and in so doing, promotes the healthful mouth-jaw exercises the mother's breast provides.

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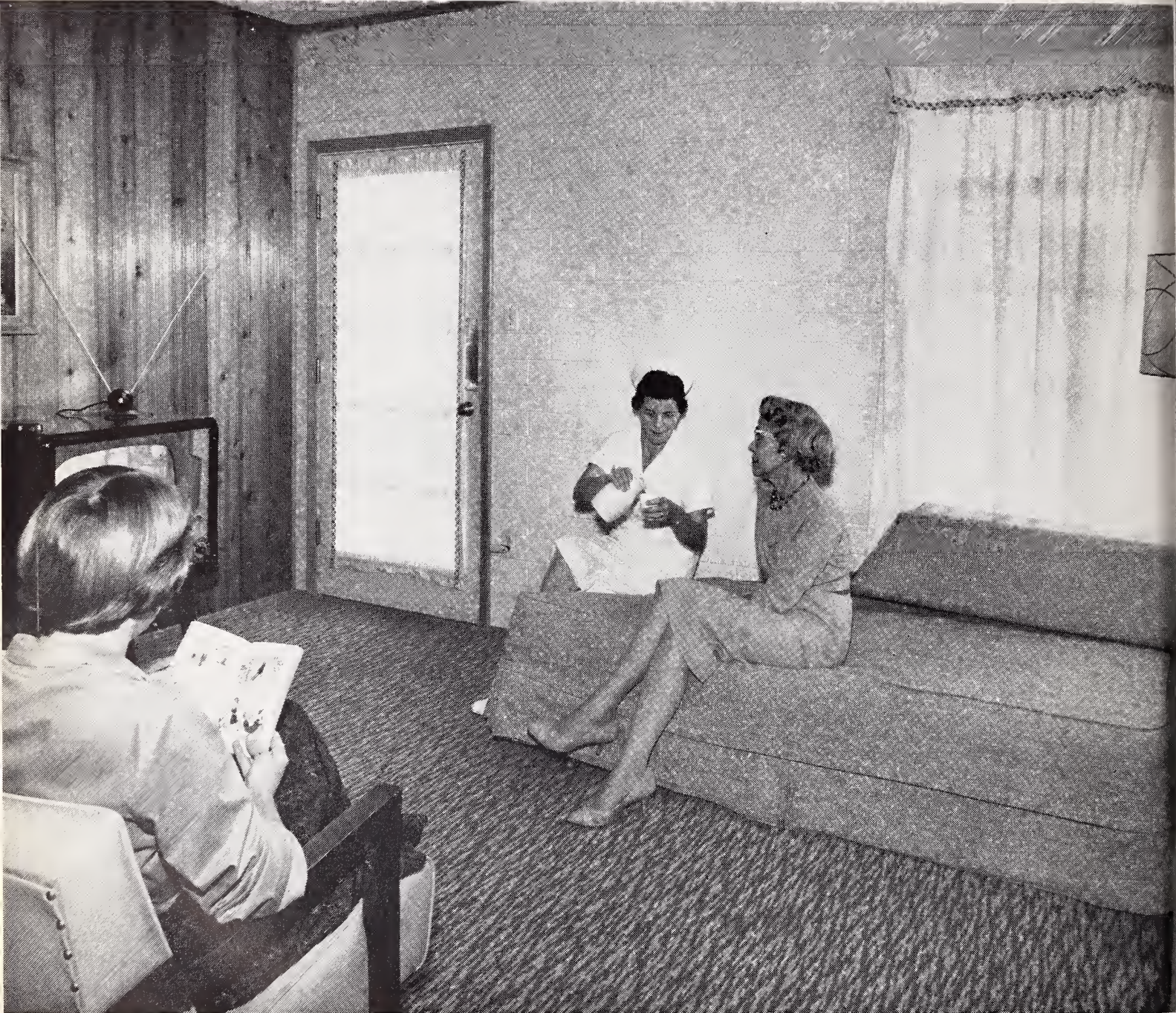
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"The nearest approach to breast feeding"



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'Aerosporin' [®] brand Polymyxin B Sulfate	10,000 Units	5,000 Units	5,000 Units
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Neomycin Sulfate	—	5 mg.	5 mg.
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Supplied:	Tubes of 1 oz., ½ oz. and ¼ oz. (with ophthalmic tip)	Tubes of 1 oz., ½ oz. and ¼ oz. (with ophthalmic tip)	Tubes of ½ oz. and ¼ oz. (with ophthalmic tip)



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Monday, July 24, 1961
The Plains Hotel

McALESTER, OKLAHOMA

Saturday, July 29, 1961
The Aldridge Hotel

SEATTLE, WASHINGTON

Saturday, August 5, 1961
The Olympic Hotel

KANSAS CITY, KANSAS

Friday, September 15, 1961
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Thursday, September 28, 1961
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TRAVERSE CITY, MICHIGAN

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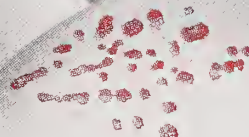
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meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; in bottles of 50.

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Heart disease, cancer, mental illness — everyone knows the nation's three major medical problems. Do you know that alcoholism ranks fourth? In the state of Arizona there are at least 23,000 alcoholics. These people need medical help. No one is in a better position to initiate and supervise a program of rehabilitation than the physician who enjoys the confidence of the patient or the patient's family.

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NEW **Zentron**TM comprehensive liquid hematinic

- corrects iron deficiency
- restores healthy appetite
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* underweight, easily fatigued, anorexic—due to mild anemia

Each 5-cc. teaspoonful provides:

Ferrous Sulfate (equivalent to 20 mg. of iron)	100	mg.
Thiamine Hydrochloride (Vitamin B ₁)	1	mg.
Riboflavin (Vitamin B ₂)	1	mg.
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Vitamin B ₁₂ Crystalline	5	mcg.
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Ascorbic Acid (Vitamin C)	35	mg.
Alcohol	2 percent.	

Usual dosage:

Infants and children—1/2 to 1 teaspoonful (preferably at mealtime) one to three times daily.

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ZentronTM (iron, vitamin B complex, and vitamin C, Lilly)



An Unusual Precipitate Given By P-Toluene Sulfonic Acid In The Serum Of Patients With Systemic Lupus Erythematosus

Harry E. Thompson, M.D.

K. K. Jones, Ph.D.

The treatise by our member, Doctor Harry Thompson, and his associate, Doctor Jones, was selected as "The Award Paper of the Year" for 1961 because it is an original discovery, the value of which is supported by the evidence gained through the highest quality of scientific research.

Leslie B. Smith, M.D., President

A comprehensive report on the development of the Thompson-Jones test which is a valuable laboratory tool in the hands of the authors. Their results are presented clearly and this test will deserve careful evaluation by clinician and research investigators encountering systemic lupus erythematosus.

AN UNUSUAL and peculiar precipitate which occurred during a routine estimation of cholesterol by the method of Pearson, Stern and McGavack (1), led to the development of a test for systemic lupus erythematosus. This test, after four years of study, was reported before the Ninth International Congress on Rheumatic Diseases at Toronto, Canada, June 1957, and published in the J.A.M.A., March 1958(2). There has been a wide spread interest in this test, which has raised many questions and some criticism. This has made it advisable for us to report our further study and to outline the procedure in detail.

Spanish translation by J. H. Varela, M.D., St. Mary's Hospital, Tucson, Arizona.

Presented in Part, Arizona Regional Meeting, Arizona College of Physicians, Tucson, Arizona, December 12, 1959.

From the Clinical Research Laboratories, Tucson, Arizona. Aided by research grant, U. S. Department of Health, Education, and Welfare.

Read before the Scientific Assembly, 70th Annual Meeting of The Arizona Medical Association, Scottsdale, Arizona, April 28, 1961.

MATERIALS AND METHODS

This is a report on 3,940 tests performed on 2,403 individuals. These may be classified as follows:

A. Systemic Lupus Erythematosus	38
B. Chronic Rheumatoid Arthritis	226
C. Degenerative Joint Disease (Osteoarthritis)	108
D. Rheumatic Fever	26
E. Metabolic Joint Disease (Gout)	13
F. Discoid Lupus	12
G. Generalized Scleroderma	6
H. Polyarteritis	3
I. Dermatomyositis	3
J. No apparent disease	290
K. Miscellaneous diseases and controls	1,678

Of 1,678 patients 1,375 were tests performed on all of the hospitalized and out-patients of the



Dr. Leslie B. Smith, (left) new President of the Arizona Medical Association, congratulates Dr. Harry E. Thompson on winning the ARMA award for the best scientific paper of the year. This is the second year the award has been given.

Veterans Administration Hospital at Tucson, Arizona, for a period of one year.*

The 38 patients in the systemic lupus erythematosus group were selected with care, to exclude any whose diagnosis was not substantiated by the clinical and the physical findings or demonstration of adequate numbers of L. E. cells on successive occasions, or by biopsy or autopsy. No borderline or questionable cases were included in this study.

In the Pearson, Stern and McGavack method for cholesterol estimation, the serum to be tested is dissolved in a solution of P-toluene sulfonic acid. Normal serum and serum from patients with all but a few diseases are dissolved in this solution completely. When it was noted that sera from patients with acute systemic lupus erythematosus gave a precipitate, it was found that this precipitate could be used as a test for

the disease and that it would differentiate systemic lupus erythematosus from other rheumatic and collagen diseases, and that it had both a diagnostic and prognostic value.

The method of performing the test, as given in the original publication, requires some minor changes and re-emphasis on certain points.

The test is simple (See Fig. No. 1), but requires attention to certain details. There is only one solution required for the test. This is made by dissolving 12.0 grams of P-toluene sulfonic acid hydrate $\text{CH}_3 \text{C}_6\text{H}_4 \text{CO}_3 \text{H}$ in glacial acetic acid, pouring this into a 100 ml. volumetric flask and filling the flask to the mark with glacial acetic acid. The P-toluene sulfonic acid must be chemically pure (C.P.), colorless crystals. Eastman 984 has given good results. The colored technical grade cannot be used. The glacial acetic acid must be the analytic reagent grade. The test may be carried out in any dry test tube. We find small test tubes 10 or 15 mm. x 100 mm. useful.

Two milliliters (2.0 c.c.) of the P-toluene sulfonic acid reagent is placed in the test tube. One tenth milliliter (0.1 c.c.) of serum to be tested is added. It makes no difference whether the serum is added to the reagent or the reagent to the serum, provided the addition is made slowly. If no precipitate is found, the test is negative and the test discarded. If a precipitate is formed, the tube is shaken 10 times with a quick flick of the wrist. If the precipitate remains after this shaking, the tube is set aside for 20 minutes and then examined. If the precipitate has disappeared, the test is negative and is dis-

TEST REAGENTS AND MATERIALS

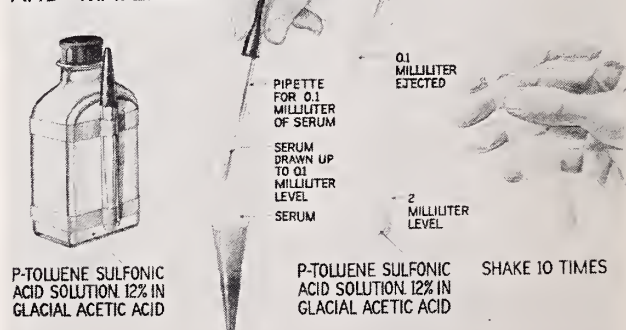


Figure No. 1

*This survey was made through the kindness and under the supervision of Dr. Joseph Plummer, Chief of Medicine at that hospital.

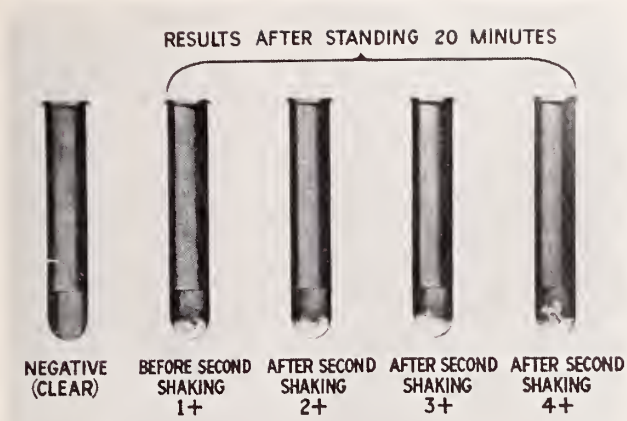
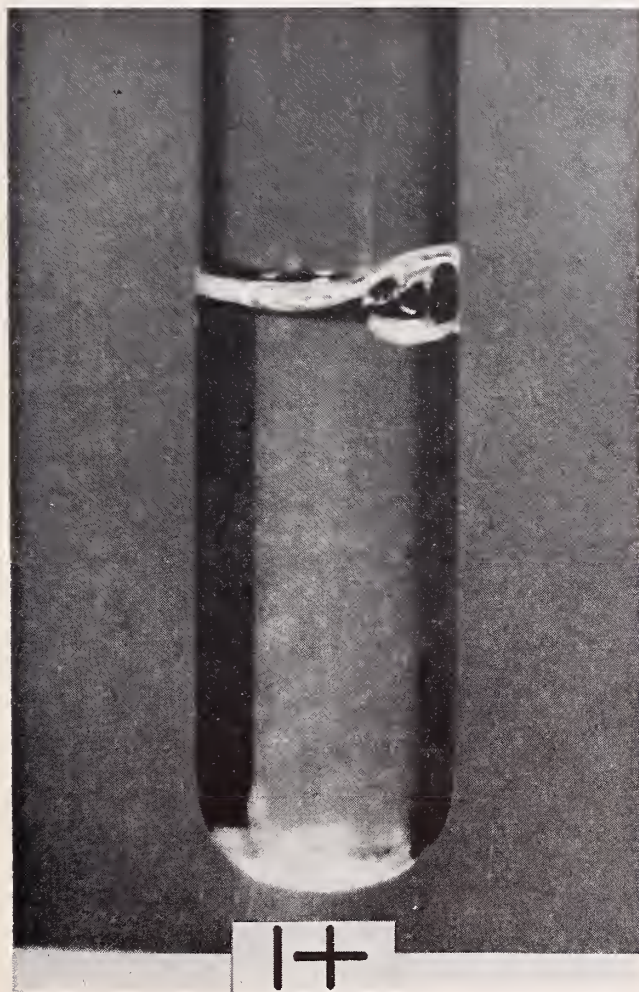


Figure No. 1 - Part 2

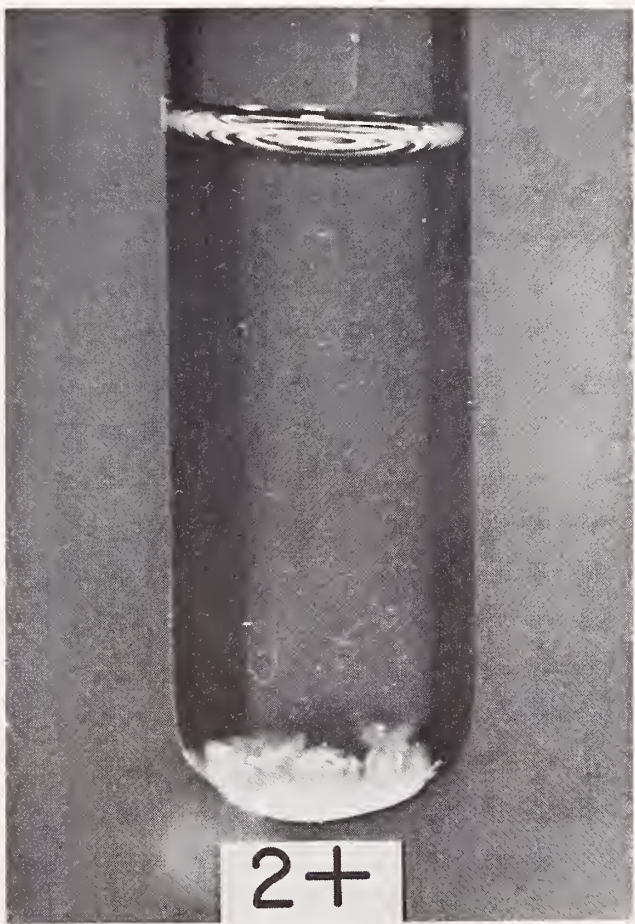
carded. If a precipitate is still present, the tube is again shaken 10 times. If the precipitate has now disappeared, the test is *one plus* (See photograph No. 1). If the precipitate remains, the test is *two plus* (See photograph No. 2). If it is heavy, it is *three plus* (See photograph No. 3), and if gel-like, clings to the side of the tube on inversion, and resists stirring or rubbing, the test is *four plus* (See photographs No. 4 and 5).



Photograph No. 1

In order to demonstrate that the positivity of the test (See Table No. 1) parallels the severity of the disease, the patients were divided into two classes — namely, — those acutely ill and those not actually ill or in remission, whether spontaneous or induced by therapy. In the first group of 18, all of the patients gave positive tests. There were two 3 plus, ten 4 plus, five 2 plus and only one 1 plus. Five of these patients, who subsequently died, continued to show strong three or four plus tests in spite of the therapy given.

In the second group of twenty patients with systemic lupus erythematosus in remission or not acutely ill, fourteen were negative and six were 1 plus. When all 38 were grouped together 37% (fourteen) were negative; 18% (seven)



Photograph No. 2

were 1 plus; 13% (five) were 2 plus and 32% (twelve) were either 3 or 4 plus. Therefore, in acutely ill patients, we may expect that approximately 67% will give a 3 or 4 plus test, which is diagnostic. A one or 2 plus test is usually considered highly suggestive, if the known false positives are ruled out.

The prognostic value of the test has three aspects: Firstly, the observation that patients who were severely ill and not responsive to therapy, always gave an unchanged and strongly positive 3 or 4 plus test. Secondly, patients who responded to therapy on serial testing showed a decreasing titre, and this decrease correlated well with the clinical response to therapy. Thirdly, patients in remission, even though the disease was apparently present but inactive, and even in the presence of L. E. cells, gave either negative or at the most 1 plus titres with this test.

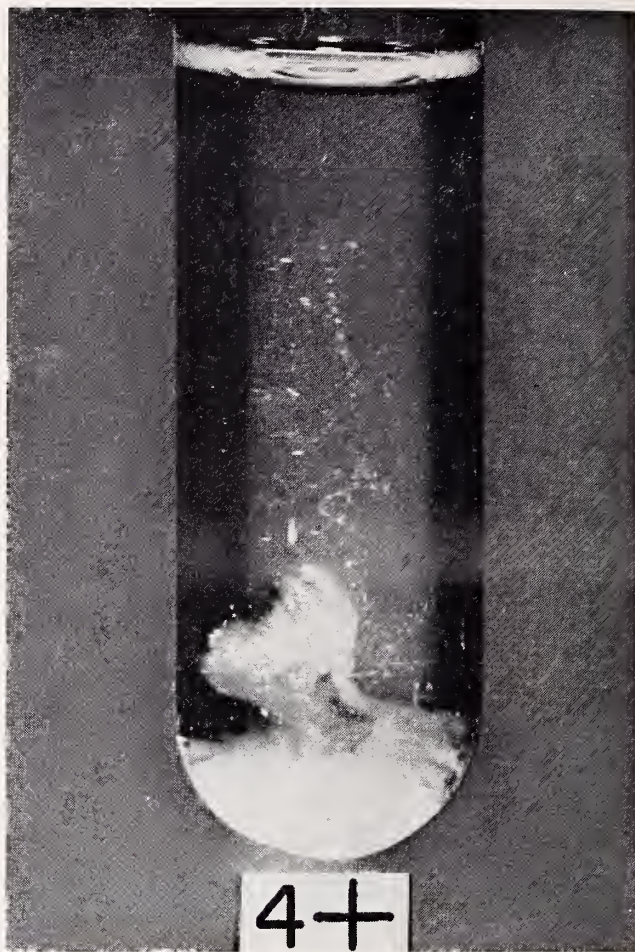
No positive tests were given by three patients with severe polyarteritis, six patients with generalized scleroderma, and three patients with dermatomyositis. In all of these cases the diagnosis was confirmed by biopsy or autopsy. In a fatal case of polyarteritis, the test remained negative up to the time of death.

The sera of 226 patients with rheumatoid arthritis was examined. (See Table No. 1). These were tested serially. The cases were classified as follows: (A) 202 patients with adult rheuma-



3+

Photograph No. 3



4+

Photograph No. 4

toid arthritis (7 acute, 195 chronic); 193 of these were negative, one plus in 4, and two plus in 5. (B) Fourteen juvenile rheumatoid arthritic patients gave negative tests in 8, two plus in 3, and three plus in 3. (C) Ten rheumatoid spondylitis were negative in 9 and 3 plus in one. Out of all 226 patients with rheumatoid arthritis, 16 gave a test. It is evident that the juvenile arthritics gave the test the most often, six out of the fourteen giving a test, or 42% against 4% giving the test in the adult rheumatoid arthritics.

Other rheumatic diseases were tested such as, (1) degenerative joint disease (osteo-arthritis), 108 patients; (2) metabolic joint disease (gout), 13 patients; and, (3) rheumatic fever, 26 patients; and, in only one of these was there a positive test, (osteo-arthritis, 1 plus). 1,375 patients in the Veterans Administration Hospital and 303 private patients with miscellaneous diseases other than rheumatic or collagen diseases, were also tested. In 98% of these cases, the sera was negative and 2% were positive. Nine patients were one plus, five 3 plus, and five 4 plus. Of the 10 patients showing three or four plus tests,



Photograph No. 5

4 had hepatitis, 3 fulminating and fatal myeloma, and 2 a disseminated coccidioidomycosis with granulomatous involvement of the bone, and 2 were undiagnosed.

Of the 290 individuals tested who had no apparent disease, 99% were negative and 1% gave a one plus test.

DISCUSSION

The unique character of the Pearson, Stern, and McGavack method for cholesterol is the complete solution of the serum in the P-toluene sulfonic acid reagent, which renders the extraction of cholesterol from the lipoproteins of the serum unnecessary. This acid is a strong hydrolyzing agent which breaks the protein into small soluble molecules.

In the original account of this method, no mention was made of interfering precipitates forming in the control, nor were there any subsequent mention in the literature of such a precipitate. We reported the first description of such a precipitate. This indicates its rarity and shows there must be an abnormal complex substance occurring in the serum of patients with systemic lupus erythematosus or certain other diseases, which is slowly hydrolyzed and dissolved. The time it takes for this substance to dissolve is due either to the larger amount in the serum or to the increased complexity of its structure.

There is also a quantitative relation between the amount of serum, and the amount of reagent used. Small amounts of serum, whether normal or abnormal, go into solution more readily than larger amounts. Therefore, for an accurate test, (1) the amount of serum, (2) the amount of reagent and (3) the timing of the various steps of the test should be closely followed.

The substance giving this test does not seem to be the one responsible for L.E. cells or for the agglutination test for rheumatoid arthritis (the so-called rheumatoid factor). For instance, one patient who had severe systemic lupus erythematosus with a positive biopsy and on autopsy a confirmatory diagnosis, had a strongly positive unchanged test. L.E. cells could never be demonstrated in this patient. In other instances, we have observed precipitates to occur several months prior to the finding of L.E. cells. It has been noted too that no precipitate or a negative test was obtained in systemic lupus erythematosus patients in remission, who had large numbers of circulating L.E. cells. The serum of patients with rheumatoid arthritis, containing large amounts of the rheumatoid factor, rarely gave a precipitate when tested.

Paper electrophoretic studies have not indicated exactly what protein fraction has been responsible for the production of the precipitate with P-toluene sulfonic acid. Electrophoretic patterns of patients with systemic lupus erythematosus, frequently show a reversed A/G ratio with shifts of various globulin fractions A₁ A₂ B and G and, while precipitates are obtained in such sera, similar patterns of patients not having systemic lupus erythematosus were negative.

This seems to bear out our impression that the large molecule or a complex protein is an abnormal protein, and that fractionation and identification by other methods than paper electrophoresis will be necessary. These studies are now being carried out in our laboratory.

CONCLUSION

In this study of 3,940 determinations made on 2,403 individuals, it was found that 100% of the sera from acutely ill systemic lupus erythematosus patients exhibited some precipitate with P-toluene sulfonic acid. In 67% the test appeared to be diagnostic with a strongly positive precipitate, 3 or 4 plus. Systemic lupus erythematosus patients responding to therapy or those in remission exhibited low positivity or negative tests, while those patients who exhibited unchanged strongly positive tests died.

Of the rheumatic diseases, only rheumatoid arthritis showed some precipitate. In adult rheumatoid arthritis, precipitates were found in 4% of the patients and in juvenile rheumatoid arthritis, 42% were positive. Rarely was a heavy precipitate encountered in these patients. Other rheumatic diseases, such as degenerative joint disease (osteo-arthritis), metabolic joint disease (gout) and rheumatic fever were negative. Other collagen diseases were negative when tested.

Of the non-rheumatic patients only 2% were

positive and those diseases giving strong positives were hepatitis, multiple myeloma and coccidioidomycosal granuloma of the bone. One per cent of the individuals with no apparent disease were positive.

From this study, the following conclusions seem warranted:

1. This test, if properly performed and interpreted, has a definite diagnostic and prognostic value for systemic lupus erythematosus.
2. There are few diseases which give false positive tests, and these may be distinguished from systemic lupus erythematosus by other means.
3. The precipitate observed with this test appears to be an abnormal precipitate not related to the lupus erythematosus or the rheumatoid factor.

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BIOGRAPHY

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W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing elsewhere in this issue:

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Un Precipitado Fuera de lo Comun Dado por el Acido P-Tolueno Sulfonico en el Suero de Pacientes con Lupus Eritematoso Sistemico

Harry E. Thompson, M.D.
K. K. Jones, Ph.D.

Un reporte comprehensivo subre el desarrollo de la prueba Thompson-Jones que es un instrumento de laboratorio muy valioso en manos de los autores. Sus resultados se presentan con claridad, y esta prueba merecera una cuidadoso evaluacion de los investigadores tanto clinicos como los interesados en el lupus eritematoso sistemico.

Este ensayo, de nuestro miembro, el Doctor Harry Thompson y su colaborador el doctor Jones,é escogido como ganador del Premio Anual del año VTFV principalmente porque representa un descubrimiento original, cuyo valor va confirmado por evidencia obtenida por viá de investigación científica de la mas alto categoría.

UN PRECIPITADO peculiar y fuera de lo común, que se encontró durante un examen de rutina en la estimación del colesterol por el método de Pearson, Stern y McGavack, condujo al desarrollo de una prueba para el Lupus Eritematos Sistémico. Esta prueba, de cuatro años de estudio, fue reportada ante el 9° Congreso Internacional sobre padecimientos reumáticos en Toronto, Canada en Junio de 1957 y publicada en el J.A.M.A. de Marzo de 1958. Ha habido amplio interés en esta prueba que ha ocasionado muchas preguntas y algunas críticas. Es aconsejable que nosotros reportemos nuestros estudios subsiguientes y deliniemos el procedimiento en detalle.

MATERIALES Y MÉTODOS

Este es un reporte de 3,940 pruebas hechas en 2,403 individuos que pueden ser clasificados como sigue:

Presentado en parte, en la junta regional de Arizona, Colegio Medico de Arizona, Tucson, Arizona, Diciembre 12, 1959.
De los Laboratorios de Investigación Clínica, Tucson, Arizona. Auxiliado por el subsidio de investigación del Departamento de Salud, Education, y Asistencia de los Estados Unidos de Norte America.
Leido ante la Asamblea Cientifica de la Septuagesima Convencion Anual de la Sociedad Medica de Arizona celebrada en Scottsdale, Arizona, et 28 de abril de 1961.

A. Lupus Eritematoso Sistémico	38
B. Artritis Crónica Reumatoidea	226
C. Padecimientos degenerativos de las Articulaciones (Osteo-artritis)	108
D. Fiebre Reumática	26
E. Padecimientos Metabólicos de la Articulación. (Gota)	13
F. Lupus Discoide	12
G. Escleroderma Generalizado	6
H. Poliartritis	3
I. Dermatomiositis	3
J. Enfermedades no aparentes	290
K. Padecimientos miceláneos y controles.	1678

De 1,678 pacientes, 1,375 fueron purebas hechas en todos los pacientes hospitalizados y de consulta externa del Veterans Administration Hospital in Tucson, Arizona, durante el período de un año.*

Los 38 pacientes del grupo con Lupus Eritematoso Sistémico fueron seleccionados con cuidado, excluyendo cualquiera cuyo diagnóstico no fué comprobado por la clínica, exploración

*Este examen fue hecho bajo la supervision del Dr. Joseph Plummer, Jefe de Medicina en ese hospital.

física, o la demostración de un número adecuado de células L.E. en ocasiones sucesivas, o por biopsia o autopsia. Ningún caso dudoso fué incluido de este estudio.

En el método de Pearson, Stern, y McGavack para la determinación del colestrol, el suero que va a probarse se disuelve en una solución del ácido P-Tolueno Sulfónico; en suero normal y el suero de pacientes con casi todos los padecimientos, exceptuando unos cuantos, son disueltos completamente en esta solución. Se observó que el suero de pacientes con Lupus Eritematoso Sistémico Agudo, dió un precipitado, el cual podía ser usado como prueba para esta enfermedad, y que la diferenciaría de otros padecimientos reumáticos y enfermedades del colágeno, y que tiene valor, tanto de diagnóstico como de pronóstico.

El método para llevar a cabo la prueba como se indica en la publicación original, requiere algunos pequeños cambios y énfasis de ciertos puntos.

La prueba es simple, (véase fig. No. 1) pero requiere atención en ciertos detalles.

Se requiere una sola solución para la prueba ésta se hace disolviendo 12 gramos de hidrato ácido P-tolueno sulfónico. $\text{CH}_3\text{C}_6\text{H}_4\text{SO}_3\text{H}$ en ácido acético glacial, vaciando éste en un matraz de 100 cc, y llenándolo hasta la marca con ácido acético glacial. El ácido P-tolueno sulfónico, debe ser en cristales químicamente puros, (P.P.) El Eastman 984 ha dado buenos resultados. Los cristales colorados no deben ser usados. El ácido acético glacial, debe ser del tipo de reactivo analítico. La prueba puede llevarse a cabo en una probeta seca. Nosotros encontramos muy útiles las probetas de 10 ó 15 mm X 100.

Dos mililitros (2.0 cc) del reactivo del ácido P-tolueno sulfónico se colocan en una probeta y se le agrega la décima parte de un mililitro (0.1 cc) del suero que va a ser probado, no importa si se agrega el suero al reactivo o el reactivo al suero siempre y cuando se añada lentamente, si no hay precipitación, la prueba es negativa y por lo tanto se descarta. Si se encuentra precipitado el tubo se agitará 10 veces con un rápido movimiento de muñeca, si perdura el precipitado después de agitarse, nuevamente se

agitará otras 10 veces. Si el precipitado ha desaparecido, el resultado de la prueba es +1 (véase fotografía No. 1). (véase fotografía No. 2) Si es denso es +3 (véase fotografía No. 3) Y si es gelatinoso adhiriéndose a las paredes del tubo cuando se invierte presentando resistencia a la agitación, a fricción la prueba es +4 (véase fotografía 4-5).

Con el objeto de demostrar que la positividad de esta prueba está en proporción directa con la severidad del padecimiento, los enfermos fueron divididos en 2 grupos; aquéllos con enfermedad aguda y los subagudos o en estado de remisión; ya sea espontáneos o inducidos por el tratamiento. En el 1er grupo de 18 todos los enfermos dieron resultado positivo, hubo 2 con 3+, 10 con 4+, 5 con 2+, y solamente 1 con 1+.

Cinco de éstos enfermos que subsecuentemente fallecieron continuaron con 3++ o 4++ a pesar del tratamiento dado.

En el 2 grupo de 20 enfermos con Lupus Eritematoso Sistémico en estado de remisión, o casos subagudos, 14 fueron negativos; y 6 dieron 1+.

Cuando se reunieron los 38 casos 37% (14) fueron negativos; 18% (7) fueron +1; 13% (5) fueron +2 y 32% (12) fueron ya sea +3 o +4. Por lo tanto en enfermos agudos podemos esperar que aproximadamente 67% dará +3 o +4, lo cual es diagnóstico. Una prueba +2 generalmente se considerara altamente sugestiva si los falsos positivos son descontados.

El valor diagnóstico de la prueba tiene 3 aspectos: Primeramente, la observación en que enfermos muy graves y que no respondían al tratamiento daban un resultado altamente positivo +3 o +4 invariablemente.

En segundo lugar, enfermos que respondieron al tratamiento, mostraron en las pruebas en serie un descenso en la titulación, y este descenso se correlaciona con la respuesta clínica al tratamiento. 3º pacientes en estado de remisión aun cuando la enfermedad estuviera aparentemente presente pero inactiva, y aún con la presencia de células de L.E., ambos fueron resultados negativos en la prueba.

Pruebas no positivas fueron dados por 3 pacientes con poliartritis severa, seis con escleroderma generalizado y tres con dermatomiositis, siendo en todos estos casos confirmado el diagnóstico por biopsia o autopsia. En un caso fatal de poliartritis la prueba persistió negativa hasta el momento de la muerte.

El suero de 226 pacientes con artritis reumatoide fué examinado (véase tabla No. 1) Esos fueron probados en serie, los casos se clasificaron como sigue: (A) 202 pacientes (adultos) con artritis reumatoide (7 agudo y 195 crónicos); 193 de éstos fueron negativos; +1 en 4 casos y +2 en 5 casos. (B) Catorce pacientes jóvenes con artritis reumatoide dieron resultados positivos en 8 de los casos, + 2 en 3 y + 3 en 3. (C) En 10 casos de spondilitis reumatoide 9 fueron negativos y 3 + en uno.

De los 226 enfermos con artritis reumatoide, se probaron 16 casos, o sea 42% contra el 4%, haciendo la prueba en adultos con artritis reumatoide.

Otros padecimientos reumáticos fueron probados tales como: (1) Padecimientos degenerativos de la articulación (osteoartritis), 108 pacientes; (2) padecimientos metabólicos de la articulación (gota) 13 pacientes; y (13) Fiebre reumática, 26 pacientes y solamente en uno de éstos se obtuvo una prueba positiva (osteo-artritis, +1). 1375 pacientes en el Veterans Administration Hospital y 303 enfermos particulares con una variedad de padecimientos que no son del colágeno ni reumáticos fueron también probados. En el 98% de estos casos el suero fué negativo y 2% fué positivo.

Nueve enfermos fueron + 1. 5 fueron + 3, y otros 5 fueron + 4. De los 10 pacientes que mostraron +3 o +4, cuatro tenían hepatitis, 2 mieloma fulminante y 2 coccidiomycosis diseminada con cambios granulomatosos del hueso y 2 no fueron diagnosticados.

De los 290 individuos examinados que no tenían ningún padecimiento aparente, 99% fueron negativos y 1% dió resultado positivo +1.

DISCUSIÓN

El carácter especial del método Pearson, Stern

y McGavack para colesterol; es la completa solución del suero en el reactivo del ácido P-tolueno sulfónico, suministra la extracción del colesterol de las lipoproteínas del suero sobrante; es ácido es un fuerte agente hidrolizante que descompone las proteínas en moléculas más pequeñas y solubles.

En la relación original de este método, no se hizo mención de los precipitados que interfirieron y se formaron en el control, así como tampoco se menciona en la literatura subsiguiente tal precipitado. Nosotros reportamos y describimos tal precipitado. Este indica su rareza y demuestra que debe haber una sustancia compleja anormal en el suero de los pacientes con Lupus Eritematoso sistémico, o en ciertos padecimientos, que es lentamente hidrolizada y disuelta. El tiempo que tarda esta sustancia en disolverse es debido, ya sea a la mayor cantidad de suero o al aumento de complejidad en su estructura, hay además una relación cuantitativa entre la cantidad de suero y en la cantidad del reactivo usado. Pequeñas cantidades de suero ya sea normal o anormal, se deluyen más fácilmente en la solución que cantidades mayores. Por lo tanto para una prueba más exacta, (1) la cantidad del suero, (2) la cantidad del reactivo, y (3) la secuencia en los pasos de la prueba deben ser llevados al pie de la letra.

La sustancia que da esta prueba no parece ser la responsable de los células de L.E. o de la prueba de aglutinación para la artritis reumatoide, (el tal llamado factor reumatoide) por ejemplo, un paciente que tenía suero con Lupus Eritematoso sistémico, con biopsia positiva y en autopsia un diagnóstico confirmado, dió un fuerte resultado positivo. Células de L.E. nunca pudieron ser demostrados en este enfermo. En ocasiones hemos encontrado precipitados varios meses antes de encontrar células de L.E.

Se ha notado también que en enfermos en remisión no ha habido pruebas negativas, de L.E. así como tampoco el precipitado, y que tenían gran cantidad de células de L.E. circulando.

El suero de enfermos con artritis reumatoide que contiene el factor reumatoide en gran cantidad, rara vez dió el precipitado en la prueba. Estudios electróforos en papel no han demostra-

do exactamente, que fracción de proteína ha sido la responsable de la producción del precipitado con el ácido P-tolueno sulfónico.

La gráfica electroforética en pacientes con Lupus Eritematoso sistémico, con frecuencia dan un cociente A/G invertido, con cambios de varios fracciones de las globulinas A₁ A₂ B y G y mientras se obtiene el precipitado en tal suero, así vemos en gráficos de pacientes que no tenían Lupus eritematoso sistémico fueron negativos.

Esto parece afirmar nuestra impresión de que las moléculas grandes o una proteína compleja es una proteína anormal, y que el fraccionamiento o identificación por otros métodos distintos al papel electroforético es necesario. Estos estudios se están llevando a cabo en nuestro laboratorio.

CONCLUSION

En este estudio de 3,940 determinaciones hechas en 2,403 individuos, se encontró que el 100% de suero pacientes con Lupus eritematoso sistémico agudo, mostró precipitado con el ácido P-tolueno sulfónico. En 67% la prueba confirmó el diagnóstico con un precipitado altamente positivo de + 3 o + 4.

Enfermos con L. E. que respondieron al tratamiento o aquellos en remisión dieron un resultado positivo atenuado o bien negativo. Mientras que aquellos que dieron un resultado altamente positivo fallecieron.

De los padecimientos reumáticos, únicamente la artritis reumatoide dió precipitado.

En la artritis reumatoide de los adultos se encontró el 4% del precipitado y en artritis reumatoide juvenil el 42% fué positivo.

Rara vez se obtuvo un precipitado denso en estos enfermos. Otros padecimientos reumáticos tales como, enfermedades degenerativas de la articulación (osteo artritis), enfermedad metabólica de la articulación (gota) y fiebre reumática fueron negativos. Otros padecimientos del colágeno fueron negativos al ser probados.

De los enfermos no-reumáticos únicamente el 2% fué positivo y aquellos padecimientos en que la prueba fué altamente positiva, la hepatitis, mieloma múltiple y granuloma coccidiomicótico del hueso. El 1% de individuos con padecimientos no aparentes fué positivo.

De este estudio, las siguientes conclusiones parecen ser justificadas:

1. Esta prueba, debidamente llevada a cabo e interpretada, tiene definitivamente un valor diagnóstico y pronóstico para el Lupus eritematoso sistémico.
2. Hay unos pocos padecimientos que pueden dar pruebas falsopositivas y estos pueden diferenciarse del Lupus eritematoso sistémico por otros medios.
3. El precipitado que se encuentra en esta prueba ha demostrado ser un precipitado anormal y no está relacionado con el Lupus eritematoso o el factor reumatoide.

HILL-BURTON GRANTS

State of Arizona

The Department of Health, Education, and Welfare reports through the Washington Office, American Medical Association, that the status of all Hill-Burton grants for the State of Arizona is:

COMPLETED AND IN OPERATION: 16 projects at a total cost of \$22,080,140, including federal contribution of \$7,438,458 and supplying 1,226 additional beds.

UNDER CONSTRUCTION: 13 projects at a total cost of \$7,896,418, including federal contribution of \$2,749,510 and designed to supply 278 additional beds.

APPROVED, BUT NOT YET UNDER CONSTRUCTION (including above): 3 projects at a total cost of \$1,388,520, including \$575,000 federal contribution and designed to supply 40 additional beds.

The Early Management of Acute Hand Injuries — An Abstract —

John Ricker, M.D.

Because of the prevalence of injuries to the hand in industry and in home accidents and the economic and social loss resulting from them, it is important for those treating hand injuries to have a working knowledge of the general principles of early management.

In most instances the final functional result directly depends upon the success and skill of the primary care. The aims of primary repair of hand injuries are healing without infection, the maintenance of functional position, and the early return of good motion and flexibility.

THE IMPORTANCE of proper care of hand injuries was stressed. It was pointed out that injured hands are responsible for considerable economic and social loss. It has been estimated that at least a third of all industrial injuries are to the hand and forearm. Many cause periods of temporary and total disability. Since everyone uses his hands in work or play the loss of even a portion of the hand is quite a handicap. Final function of the hand and the success of secondary reconstructive surgery if any depend directly on the proper primary care of hand injuries.

Anatomy

The anatomy of the hand was briefly reviewed with special attention to distribution and location of nerves, location and function of tendons, skin creases, and the bone and joint structure.

General Principles

Wounds should be covered securely and the extremity immobilized as soon after the injury as possible. Patient should be properly sedated and in most instances lying down. Careful evaluation of the injury is made by first obtaining a history as to type of injury, causative agent,

place and time of injury, and what if any prior treatment or first aid has been given. Age, occupation, and general physical condition are also important. An examination of the motion, sensation, and circulation is made preferably without uncovering the wound. It is not necessary to peek or probe into the wound to diagnose several tendons or nerves. X-rays are indicated in crushing or bruising types of injuries and in most types of machine injuries, and should be taken whenever practicable.

Surgical care and repair is carried out under ideal conditions in an operating room except in the most minor superficial injuries. Adequate anesthesia in a bloodless field obtained by use of a pneumatic tourniquet is used.

All wounds and surrounding skin are carefully cleaned with surgical soap and water. The wounds are irrigated with sterile, non-irritating solution, either normal saline or plain water, the amount depending on the type and severity of the injury. Debridement is done removing dead, devitalized, and contaminated tissue followed by a second irrigation. Following debridement the wound is evaluated and repair is done. In general any wound, unless it is grossly contaminated or inflamed, can be closed up to 6

or 8 hours after injury if debridement is complete. Primary skin closure is done in practically all cases.

In repairing injuries of the hand which have multiple tissues involved, of first importance is adequate skin coverage preceded by careful debridement and cleansing of the wounds. Next is restoration of a functional position by adequate fixation of bones and joints. Everything else is of secondary importance and can be taken care of at a later date.

Fingertip Injuries

These consist of simple bruising requiring only supportive bandage and possible drilling of the nail to severe avulsed and lacerated wounds involving the bone and soft tissues. As much of the fingertip as possible should be salvaged. The use of split thickness grafts taken from the same extremity with a razor blade is a simple way of repairing skin defects that can not be closed otherwise.

Skin

Injuries involving the skin alone are fairly common. Primary healing can mean a very short period of working disability and little or no permanent disability. Simple wounds are cleaned up and closed without tension. Avulsed flaps, especially if there has been contusion and considerable trauma to the flaps, require careful evaluation of the viability of the flaps. If not viable, they should be discarded and replaced by split thickness skin graft. If there is loss of skin overlying joints, tendons, or nerves it is desirable to rotate a small local flap of skin over this area and graft the defect with split skin. Firm pressure dressing should be applied with the finger held in a position of function.

Tendons and Nerves

Tendon injuries can not always be taken care of primarily. Flexor and extensor tendons require different treatment. In general extensor tendons are repaired primarily if at all possible since they are not in sheaths, they are usually superficial, and delayed repair is difficult. Flexor tendons are repaired only under optimum conditions in the hand, and those where both tendons are severed opposite the proximal phalanges of the fingers are seldom repaired primarily.

Nerve injuries frequently accompany tendon injuries but can be separated. Under ideal conditions and in incised wounds of the nerve, primary repair is usually easy and successful. In lacerated or avulsed wounds of the nerve, primary repair is difficult and secondary repair is much more satisfactory. A certain amount of experience and skill is required for nerve repair as well as tendon suture, and repair of these structures should not be attempted by the inexperienced.

Fractures

Simple fractures can usually be reduced under local anesthetic and the finger immobilized in a functional position using aluminum splints, Boehler wires, or plaster of paris splints. Fractures of the distal phalanx require no special treatment except those with avulsion of the extensor tendon. Fractures of the proximal phalanx require considerable flexion of both the proximal and middle joints to neutralize the tendon pull. Fractures of the distal end of the metacarpal sometimes require acute flexion of the middle and proximal joints of the corresponding finger for accurate reduction and maintenance of position. Fractures of the shafts of the metacarpals and carpal bones usually require a simple wrist splint holding the hand in a functional position.

Compound fractures frequently can be immobilized by fine Kirschner wires in order to facilitate the removal of dressings and splint for inspection of wounds.

Compound and Severe Injuries

As much of the hand as possible should be salvaged. The only criterion for primary amputation is loss of blood supply. Primary wound healing takes precedence over all other factors. Repair of deeper structures should not jeopardize wound healing. It is not desirable to repair tendons or nerves when injury is to skin, tendon, and bone at the same level. Sometimes it is desirable to sacrifice a badly injured finger using its skin for coverage of adjacent fingers or adjacent parts of the hand. All fractures should be immobilized by internal fixation if possible, and the entire hand put up in a position of function.

Amputations

As much of the member as possible should

be saved. All functioning portions of the phalanx should be saved if satisfactory skin coverage can be obtained. If a more satisfactory amputation stump can be obtained by taking off the base of a non-functioning more distal phalanx, this should be done. All viable tags and remnants of skin can be used for stump coverage. Split thickness skin grafts are the easiest and in many instances the most satisfactory coverage for ends of stumps and defects.

The optimum sites of amputation are through the middle third of the distal phalanx, distal third of the middle phalanx, distal third of the proximal phalanx, and through the base of the

proximal phalanx. The head of the metacarpal should always be saved to keep the arch and strength of the palm. For cosmetic purposes the second and fifth metacarpals are sometimes removed in their distal two-thirds. Length of thumb should be preserved at all cost.

A single finger or thumb is of very little functional value but many times should be preserved to determine further treatment. Even the proximal row of the carpus should be saved; however, the distal end of the radius and ulna does not make a satisfactory stump and amputation through the lower third of the forearm is better.

FDA COUNTERFEIT DRUG SURVEY

The Food and Drug Administration released the results of its nation-wide investigation of drug counterfeiting.

Almost 2,700 samples were collected from 900 drug stores selected at random between January 24, 1961 and March 30, 1961. Of these samples, 9 samples from 9 stores were found to be counterfeit. Six drugs were selected for sampling, all of them known from previous experience to have been counterfeited.

Commissioner of Food and Drugs George P. Larrick said that all of the counterfeits whose origin has thus far been determined came from the General Pharmacal Co., Inc., Hoboken, N. J.

(U. S. Department of Health, Education and
Welfare, Food and Drug Administration)

Stress and the Practice of Medicine

Edward J. Kollar, M.D.

An interesting and stimulating article with a comprehensive view dealing with a common problem which occurs daily in the practice of medicine. A well organized discussion of the depressive state which frequently is masked by other symptomatology. This article should be of interest to all readers, and particularly of value is the excellent reference index.

INTRODUCTION:

THE OBJECTIVES of this paper are first to define psychological stress in terms of the emotion of depression, as well as the emotions of anxiety and anger; and second, to show the relevance that psychological stress has to medicine in general.

Stress has a number of meanings. In common usage it indicates hardship, adversity, and sometimes forces applied to a person to compel or extort. In physics, stress denotes internal forces which resist changes of form or volume of matter. In biology and medicine, stress is used to indicate either external forces or stimuli which impinge on the organism, or the effects of such forces and stimuli within the organism.

There are a number of stress models which have been postulated by workers in the area of psychosomatic medicine. These models have been reviewed in detail elsewhere(1). Although these models vary in detail, they are all in agreement in assigning a primary role to anxiety. A composite statement is that psychological conflict or stress produces anxiety, which is an experience so painful to the individual that he defends against it with the symptomatology of neuroses, psychoses, or psychosomatic disorders.

This linking of psychological stress to anxiety is a corollary of the unitary hypothesis of emotions of displeasure first formulated by Freud(2). This hypothesis holds that anxiety is the basic or primary emotion of displeasure and the source of all other emotions of displeasure. A diagrammatic composite statement of these models is as follows:

Psychological Stress	Anxiety
Pathology	(Depression (Anger (Guilt (Disgust, etc.

When anxiety is defined in terms of psychophysiological mechanisms, reference is always made to Cannon's principle of "flight or fight" which is a statement of sympathetic activation. Thus, stress is represented as an excitatory phenomenon. The only exception is Alexander's model(3) which includes a concept of "vegetative retreat" which is an inhibitory-conservatory phenomenon mediated by the parasympathetic system. A schematic statement of Alexander's model is as follows:

Psychological Stress	Tissue Change Fight or Flight (Sympathetic) Anxiety Vegetative Retreat (Para-sympathetic) Tissue Change
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Department of Psychiatry, UCLA School of Medicine.

There is a paradox in this model in the sense that a basic excitatory state (anxiety) finds expression through inhibitory-conservatory channels (vegetative retreat). If anxiety is basic, then there should be evidence for this in terms of sympathetic activity, not para-sympathetic. Other reasons for rejecting Alexander's model are discussed elsewhere(1). A more ismple explanation is possible, if one accepts the hypothesis that stress may directly evoke inhibitory-conservatory responses as well as excitatory. Stress defined in this manner may be stated schematically as follows:

	Pathology
Psychological Stress	Inhibition
	Pathology
	Excitation

In the next portion of this paper both biological and psychological evidence will be cited to support this point of view.

PHENOMENON OF SUDDEN DEATH:

Richter(4) has recently described a mechanism of sudden death in wild rats, due to inhibitory phenomena and mediated through the para-sympathetic nervous system. He found that wild rats put into an agitated container of water died in a few minutes. White laboratory rats under the same conditions swam for 40 to 60 hours before drowning. Cardiograms obtained by attaching electrodes to the animals before they were immersed showed an increase in heart rate in the white laboratory rats. The wild rats showed a cardiac arrest and at autopsy their hearts were in a state of diastole and filled with blood. If the wild rats were repeatedly immersed and freed before they were placed in the experimental containers they then behaved like the white rats, and attempted escape by swimming for long periods of time. Adrenalectomy did not protect the wild rats from sudden death. Cholinergic drugs made white rats prone to sudden death. A few wild rats died simply while being held in the hand.

As Richter points out, this is not a "fight or flight" response. Rather, it seems to be a reaction to hopelessness and despair. The animals simply gave up.

Richter suggests that "voodoo" death(5) and the psychogenic deaths reported in inmates of concentration and POW camps are due to similar phenomena. These individuals confronted by adverse life situations literally gave up. Physician inmates of POW camps reported that individuals overwhelmed with despair and hopelessness took to bed, turned their faces to the wall, and died. These deaths could be averted if the individuals could be stimulated into anger or into some interest in events about them(6).

STARVATION

During hunger an individual is in a state of excitation as is evidenced by a sense of tenseness, or anxiety. In starvation where there is actual tissue depletion this excitatory state gives way to a profound inhibitory-conservatory state. Keys(7) reports that the starving man has a low metabolic rate, bradycardia, hypotension, hypothermia, and great muscular weakness. In man neither acute nor chronic starvation produces an increase in 17 ketosteroid excretion; thus ruling out the possibility of adrenal cortical activation(8). Starving man conserves energy in every possible way. He looks depressed and he feels depressed. He is quiet, somber, apathetic, and slow in motion. Neurotic symptoms are always uncovered; psychotic symptoms rarely so. There is usually a recovery from these neurotic symptoms upon nutritional rehabilitation.

A number of animals are able to adapt to seasonal diminution of food supplies or other stressful environmental conditions by entering into dormescent states of hibernation and estivation(9). Even man has been reported to have a capacity to enter into a similar state which might be called 'winter sleep' in Arctic regions(10).

SLEEP DEPRIVATION:

There are a number of studies which document sleep deprivation as a psychological stressor,(11,12,13). In addition to fatigue, psychomotor retardation and irritability, sleep deprivation results in psychotic-like symptoms such as illusions, hallucinations, marked mood alterations and personality disorganization. In a recent study,(14) a definite parasympathetic shift of autonomic activity was reported. This shift was manifested by increases in skin resistance, decrease in blood pressure and heart rate, and hy-

pothermia. Excretion of 17 ketosteroids remained unchanged, ruling out the possibility that this is stress as defined by Selye. Although further work is required, it appears that sleep deprivation, working in a manner analogous to starvation, evokes a state of stress with marked inhibitory manifestations and a para-sympathetic shift.

MATERNAL DEPRIVATION IN THE NEONATE:

Margaret Ribble,(15,16) has described a comatose state in new-born infants which occurred when they were subjected to their mothers' total rejection. These mothers were teen age girls who were illegitimately pregnant and totally lacking in maternal feelings for their infants. They frustrated their infants' first attempts to suckle because of their clumsy handling of the infants and a lack of erectile response of the nipples. After a few frustrating efforts at nursing these infants became stuporous, developed irregular respiration, extreme pallor and diminished sensitivity. It was as if they had regressed to an intrauterine level of existence in which sucking was not necessary. They were listless, apathetic, and refused their feedings. Gastric gavage did not seem to change the condition. Saline clysis, I.V. feedings, and blood transfusions were often required. After recovery, these infants had to be taught to suckle. Thus, the neonate responds to the mother's total rejection with marked inhibition and depression of biological processes. It is not likely that this phenomenon is triggered by psychological mechanisms. The most plausible explanation is that this is a response at a biological level to the lack of physical stimuli needed to maintain homeostasis in the neonatal period.

OBJECT LOSS IN THE INFANT:

Spitz,(17,18) reported on the effects of maternal deprivation of infants with sufficient ego development to be able to recognize and relate to their mothers. He observed a number of normal infants who had a minimum of 6 months' satisfactory relationship with their mothers before they were separated and put in an environment where they had to share the attention of one attendant with eight to ten other infants. There was marked weight loss and arrest of physical, psychological, and social development. By the end of three months these infants lay

prone in a weepy insomnia, with averted faces fixed in a rigid expression. Spitz called this condition anaclitic depression and compared it to clinical depression in adults. During the first three to five months of maternal deprivation, a rapid remission could be produced by the return of the mother or an adequate substitute. If deprivation persists beyond this critical period the condition is irreversible and development deteriorates to a distressing degree. Sitting, standing, walking and talking are not achieved, even by the age of four. Marasmus and death are a frequent consequence. In spite of adequate dietary and sanitary precautions, nearly 40 per cent of Spitz's subjects were dead at the end of two years. The response of these infants to maternal deprivation was a total psychosomatic reaction with marked inhibitory and depressive features.

OBJECT LOSS IN THE ADULT

Although grief is a universal and intensely painful experience, surprisingly little has been written on this subject. Freud(19), and Lindeman(20), have made the most important contribution to the literature. Grief, or the affect depression, is the emotional response to the loss of an object of gratification. Grief work is the painful attempt to adjust the individuals' psychic representations of external reality so that the image of the lost object is relinquished to correspond with the absence of the object in actuality. It is more than a simple readjustment to an environment in which the object is missing. It is an attempt to free emotional attachments to the lost object so that new relationships may be formed. Grief is so painful that it can be managed only in recurrent attempts. It ceases only when the image of the lost object has been dislodged from psychic reality. Grief, like anxiety, is a psychosomatic reaction with somatic as well as psychic distress. This distress comes in recurrent waves and is manifested by tightness in the throat, choking and shortness of breath, need for sighing, empty feelings in the abdomen, lack of muscular power, disturbances of appetite, and other bodily functions. Unfortunately, most of our physiological data on grief comes from subjective reports. As compared with anxiety, there are very few laboratory studies.

Because grief is so painful it is frequently not

managed in a straightforward way and finds expression in a variety of morbid reactions. Lindeman discusses these morbid grief equivalents in some detail. Most important for this discussion are the psychosomatic illnesses which develop in lieu of mourning. Lindeman points out that such diseases as ulcerative colitis, rheumatoid arthritis and asthma, frequently appear as morbid substitutes of normal grief.

DEPRESSION AND PSYCHOSOMATIC DISEASE

Lindeman's observations that psychosomatic illnesses may develop as a pathological equivalent of grief has been confirmed by the work of many others. Engel's work with ulcerative colitis patients(21), and Chambers' and Reiser's studies of patients with congestive heart failure(22), illustrate the importance of real or phantasied interruption of key relationships in these illnesses. There are many other reports dealing with other diseases that seem to develop in a psychological setting of atypical depression or grief following a real or phantasied object loss. These include diabetes mellitus(23), functional uterine bleeding (24), pernicious anemia(25), Raynaud's disease(26), rheumatoid arthritis(27), asthma(28), tuberculosis(29), thyrotoxicosis(30) and lupus erythematosus(31). Other writers, including Benedek(32), and Schmale(33), have emphasized the importance of depression as a basic psychosomatic mechanism.

DEFINITION OF STRESS

In view of the evidence cited, it seems reasonable to define both biological and psychological stress as those forces and stimuli which produce psychobiological states of either excitation or inhibition-conservation. Either psychological or physiological stimuli are capable of evoking these states. Agents which act directly to produce tissue damage may trigger a state of excitation at a biological level. If the organism is deprived of some necessary substance, stimulus, or experience required for homeostasis, the state of inhibition-conservation generally occurs. The psychological stimuli which evoke a state of stress arise from situations which the individual interprets to mean that a source of gratification is either threatened or has been lost. If the individual feels his source of gratification is

threatened, the response is excitatory (fight or flight); if the individual passively experiences this state of excitation, it is called anxiety. Should the excitatory state be actively directed at the source of danger, it is called aggression — (rage or anger). If the individual feels he is deprived of gratification, the response is depression (grief). Anxiety, aggression, and depression are psychobiological states with characteristic patterns of autonomic activity. Anxiety and aggression are expressed mainly through adreno-sympathetic mechanisms. Anxiety is accompanied by an adrenalin pattern of autonomic activity, and aggression with a nor-adrenalin pattern(34,35). Depression is expressed physiologically, at least in part, through para-sympathetic mechanisms. Stated schematically:

Stress	Anger (active defense) (nor-adrenalin)
	Excitation
	Anxiety (passive submission) (adrenalin)
	Inhibition- Conservation
	Depression (hopelessness) (para-sympathetic)

Anger, anxiety and depression are basic ego reactions determined in part by the way in which the individual evaluates the stress that confronts him. Anxiety and anger are always anticipatory phenomena even though they may be the reaction to a present danger. There is always some degree of helplessness associated with anxiety and anger. Depression is a consummative phenomenon from which there is no reprieve. One may feel helpless in the face of anxiety but one is not without some degree of hope. In the face of depression one is not only helpless but one despairs of hope. Thus, when an individual is stressed, he always experiences some degree of helplessness and/or hopelessness.

STRESS AND THE EVALUATION OF DISEASE PROCESSES

The question naturally arises as to how this definition of stress may be used in the office and hospital practice of medicine. Perhaps the most obvious is its value in clarifying and classi-

fying the stressful life situations which trigger the so-called classical psychosomatic illnesses. For instance, the kind of stress that triggers an attack of paroxysmal tachycardia differs from the stresses associated with ulcerative colitis and hypertension.

Paroxysmal tachycardia may be viewed as an atypical anxiety attack with an excessive cardiac rate which is triggered in predisposed individuals when they are threatened with the loss of some important source of gratification. An example is the case of a successful building contractor who, although he was happily married, had a compulsive need to prove his manliness through indulgence in numerous extra-marital affairs as well as questionable business activities. His first attack of paroxysmal tachycardia occurred while he was involved in the seduction of a new maid in his household. At the point of success a car drove into the driveway. This he took to be the untimely return of his wife. His second attack occurred during a business conference while a colleague was in the process of exposing a shady deal perpetrated by the patient. This attack prevented the expose and led to his seeking first medical and then psychiatric help. Subsequent attacks occurred in similar situations of threat or danger. It is of interest that the relationship of the stress to the attacks was not at all obvious to the patient. However, an awareness of this gained in psychotherapy led him to re-evaluate his attitudes and values. He stopped his extra-marital exploits and the corner-cutting in business. With this change in behavior his attacks of paroxysmal tachycardia subsided.

Ulcerative colitis is not activated by anxiety-producing stress. Rather, it occurs in predisposed individuals when they perceive a key relationship or an important source of gratification to be lost. Ulcerative colitis occurs in a psychological setting of atypical depression. An example is the case of a young man who was in great conflict about marrying a girl of his choice because his domineering mother, on whom he was extremely dependent, refused to accept the girl. His decision was forced when he impregnated the girl. His mother rejected him in a bitter quarrel and within 24 hours he suffered an explosive onset of his illness. His disease has continued over a number of years in chronic form with exacerbations following incidents which he interpreted

as rejection or withdrawal of love by his wife. Many of these incidents were seemingly trivial or unfounded. Anxiety-producing situations seemed to have no effect on the course of his illness. For instance, in his work as a liquor store salesman he was in a number of hold-ups, but suffered no flare-ups of his illness. He even went through a period of intense castration anxiety when he entered a hospital for a bilateral herniorrhaphy. Both he and his wife feared that this might interfere with his sexual functions. It is of interest that although this intense fear had no effect on the course of his ulcerative colitis it did lead to a better sexual adjustment.

Hypertension may develop in predisposed individuals who are reacting to stress with smoldering repressed anger. An example is the case of a 43-year-old male with severe hypertensive cardiovascular disease which had responded poorly to a variety of medical programs. His blood pressure remained at unremittingly high levels and on two occasions he was hospitalized because of cardiac decompensation. It was during his second hospitalization that his case was presented in a psychosomatic conference. He became involved with the interviewing psychiatrist in an intensely dramatic way; relating to him as though they were in a consultation room and not in a large conference. With great intensity he discussed the great resentment he had harbored for twenty years for his family because they had not accepted his wife. Later that day he expressed the same resentment for the first time to members of his family who came to visit him. His blood pressure dropped markedly to a more physiological level and remained there during a follow-up period of several months. This drop was quite impressive because he had not responded previously to any of a large number of hypotensive drugs. It had been thought that his hypertension was organically fixed.

The concept of psychological stress also has value in understanding illnesses which are not ordinarily considered to be psychosomatic. In considering the epidemiology of all illnesses it is important that we look beyond simple cause and effect etiological relationships. It is becoming increasingly clear that an adequate concept of etiology envisions pathology as arising from

multiple simultaneous causes. It is not enough to know that a person is diseased. It is necessary to know the circumstances, the life situation in which he became diseased. There is increasing evidence that many people do not simply become ill because of a fateful incident, an accidental encounter with a pathogenic agent, or the untimely emergence of some unfortunate innate pathophysiological imbalance. There are convincing studies which show that many patients in general hospitals become ill for the first time, or suffer an exacerbation of a chronic process, or submit to some elective surgical procedure at a time when they are undergoing a stressful life situation.

The importance of depression and depressive equivalents as the response to a stressful life situation causing a person to make a plea for the patient role, can be seen in any general hospital patient population. During five years experience as chief of a psychosomatic service of a large general hospital I gradually became aware of and was tremendously impressed with the large number of patients who had masked depressions, sometimes behind a smiling, amiable facade. Of course it can be argued that anyone who is ill is entitled to react to his illness with depression, a fact with which I am indeed in complete agreement. The point, however, which I wish to emphasize is that these individuals were depressed before they developed the illness which caused them to petition for the patient role. These individuals had been confronted with a stressful life situation which either acutally deprived them, or which they interpreted to deprive them, of some needed source of gratification. Whether their evaluation of their plight was realistic or neurotically distored did not matter. They felt overwhelmed and unable to cope with the stress. Their mood and attitude regarding this stress was uniformly that of helplessness and/or hopelessness. It was in this psychological setting that they became ill and made a plea for the patient role. These patients were found on all wards and in all diagnostic categories. They came to the hospital asking for more than relief from somatic disease. Although their pleas were disguised, even from their own awareness, and oftentimes mute, they were nonetheless looking for understanding and help — and perhaps most of all, hope.

STRESS AND THE DOCTOR-PATIENT RELATIONSHIP

It is one of the anachronisms of medical practice that the patient brings with him forces which are disturbing to the physician and which tend to cause the physician to ignore the patient and defend himself. Many patients come to us not only with physical hurts or some kind of physical distress, but they are either covertly or overtly angry, frightened, or depressed. These are qualities in patients which automatically tend to set off defense reactions within the physician. The hurts and the distress of the patient threaten to stir into awareness the physician's own hurts, misfortunes, and inadequacies. One of our forms of defense is to shift our focus from the patient to the things we are doing for the patient. We become very busy, sometimes frenetically so and we don't have time to see the patient as a person who is suffering. We attempt to depersonalize him through the magic of replacing his name with a label. He becomes, for example, the fracture in Room 10, the suspect T.B. in isolation, the terminal C.A., and even the "crock." We narrow our view of what constitutes pathology and what entitles a person to make a plea for the patient role. However, all these machinations can be seen as disguised efforts to defend against our own anxieties and depressions. In short, we forget to treat the patient because we are so busy treating ourselves.

The question arises as to how a physician can avoid such pitfalls. How can he combat the disturbing effects of the patient's moods and his attitudes of helplessness and hopelessness? If the patient is responding to realistic adverse and stressful events there is little that his physician can do to correct them. If the patient is responding to events with neurotic distortions the non-psychiatric physician is not trained to help the patient to correct or resolve these distortions. What then, can the physician do? He can really accomplish a great deal by doing some rather simple things. He can attempt to make an empathic evaluation of those things that are disturbing the patient. He can attempt a simple understanding of the patient as a person reacting to psychological, social and cultural forces as well as physical and biological forces. A detailed psychiatric and social history

is not necessary nor desirable for this understanding. The physician need only concentrate on the patient's present life situation. If the past has relevance to the present the patient often will point this out himself. It is not necessary for the physician to succeed in a complete understanding of what is disturbing the patient, such as a psychiatrist might do. The mere fact that he is trying is often enough to cause the patient to feel that he is understood. With this comes a subtle shift in mood and attitude. The patient now has an ally. He no longer feels quite so helpless nor does he despair of hope. With this shift in mood and attitude come equally subtle but desirable physiological shifts. The psychophysiological processes which have contributed to the patient's illness have been halted and reversed. The physician now has a relationship with the patient that he can exploit for the patient's own welfare. He can work in a relaxed and understanding way with his patient because now he does not need to defend against inner turmoil triggered by the anxiety or despair of the patient.

A study by Chambers and Reiser on patients with congestive heart failure illustrates the importance of psychological stress in precipitating episodes of decompensation as well as the importance of the physician's understanding of these stresses in the management of such cases(22). They found in a majority of their cases that decompensation occurred in a psychological setting of helplessness and hopelessness following loss of a key figure or rejection by a key figure. Contrary to what might be expected, interviews focusing on this traumatic material had no deleterious effects; rather there seemed to be a beneficial influence on the patients' physiological status. There were some patients with particularly precarious cardiac balances who did not fully respond to medication until after a doctor-patient relationship had been established. These patients maintained compensation only as long as the doctor-patient relationship was satisfactory; but if this relationship was broken, in fact or in fantasy, the patient again developed congestive heart failure.

The deleterious effects of breaking the doctor-patient relationship is often dramatically illustrated in teaching hospitals when the house staff is rotated. Patients who were doing quite well suffer relapses and the O.D.'s are kept

quite busy at these times. After the patients adjust to their new doctors they regain the ground lost.

In reviewing the charts of a large number of patients hospitalized with ulcerative colitis I was impressed that when the doctors' and nurses' notes reflected an active acceptance and understanding of the patient and his life situations he tended to improve rapidly and go into remittance. If the charts showed only an academic interest in the patient as an interesting or challenging medical problem his course was chronic and hospitalization prolonged. In two instances in which the patients were obviously not accepted or liked as persons by the ward personnel, the patients had stormy courses and expired in spite of heroic efforts of medical management.

The physician does not need extensive training in psychopathology and psychotherapeutic methods to effect a good therapeutic relationship. Also, he need not extend himself in manner or deed to impress the patient or to get the patient to like him or to idolize him. There are dangers in this. What is needed is a simple relationship built on simple understanding and respect.

CONCLUSION

In summary, psychological stress has been defined in terms of the psychophysiology of anger, anxiety and depression, which are basic ego states of displeasure. The role of the moods and attitudes of helplessness and/or hopelessness in the etiology of disease processes has been discussed. The importance of the doctor-patient relationship in checking and reversing these pathogenic psychophysiological processes has been emphasized. One of the most potent agents in the physicians' armamentarium is the hope that the physician brings to the patient, through his understanding of the patient as an individual who is struggling with stressful life situations.

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THE COST OF MEDICAL CARE

Today's Prices Compared with 20 Years Ago

Domestic Servants	Up 297%
Men's Haircuts	Up 218%
Shoes	Up 169%
Food	Up 151%
Public Transporation	Up 139%
Movies	Up 130%
All Medical Costs	Up 108%
Clothing	Up 106%
Physicians' Fees	Up 90%

Note: "Today" is 1959 and "20 Years Ago" is 1939.

(from AMA's publication, "The Cost of Medical Care")

Topical Methylprednisolone in a Physiological Base—Its use in the Treatment of Dermatoses

George H. Kostant, M.D.

A total of 120 patients with various common skin disorders were treated with a Methylprednisolone cream and a Neomycin-Methylprednisolone cream. (Medrol Acetate, Veriderm and Neomedrol Acetate, Veriderm.) Results were excellent in 68 (57%), good in 45 (37.0%) and poor in only 7 (6.0%). The preparations were well tolerated and cosmetically acceptable.

THIS paper reports my experience with two new topical methylprednisolone preparations in a recently developed base designed to simulate the composition of normal skin lipids. The base is similar to the average composition of human skin lipids (sebum) relative to the following: unsaturated and saturated fatty acids, triglyceryl and other esters of fatty acids, saturated and unsaturated hydrocarbons, free cholesterol, and higher molecular weight alcohols. Furthermore, the infrared spectrum and the acid, saponification, and iodine, numbers are nearly identical to those obtained with natural human sebum.¹

MATERIALS AND METHODS

One hundred thirty-six patients with various dermatoses participated in the study. However, 16 did not return for follow-up examination. The 120 completing the study ranged in age from 4 months to 70 years. Forty-eight were treated with methylprednisolone 0.25% in the special cream base and 72 were treated with neomycin 0.5%-methylprednisolone 0.25% in the same cream base. Each patient was instructed to apply the prescribed cream to the affected area twice daily.

Of the patients treated with the methylprednisolone cream, 12 had concomitant therapy — 5

received oral or parenteral corticosteroids, 4 received radiotherapy, 2 received antihistamines, and 1 received a tranquilizer. Of the patients treated with the neomycin-methylprednisolone cream, 9 had concomitant therapy — 6 received oral or parenteral corticosteroids, 2 received radiotherapy, and 1 received antibiotics.

Duration of treatment depended largely on the particular dermatosis involved and ranged from 2 days to 7 weeks.

Results were graded as follows:

excellent — 50-100% improved

good — 25-50% improved

poor — evidencing less than 25% improvement, necessitating a change in topical therapy.

RESULTS

The results are summarized in Tables One and Two. Of the 48 patients receiving methylprednisolone cream, 60% had an excellent response and 38% a good response; of the 72 cases treated with neomycin-methylprednisolone, 54% had an excellent response and 38% a good response. Only 6% of patients treated with both creams responded poorly. Forty-four patients achieved excellent results with these creams within a period of one week.

One case deserves special comment. A 55-year-

Medications supplied as Medrol Acetate, Veriderm® and Neo-Medrol Acetate, Veriderm® by The Unjohn Company, Kalamazoo, Michigan.

TABLE ONE

Results of Treatment of Dermatoses with Methylprednisolone 0.25% in a Cream Base Approximating the Composition of Skin Lipids

Diagnosis	No. Pts.	Excellent	RESULTS Good	Poor
Ano-genital pruritus	4	2	2	
Atopic dermatitis	8	5	3	
Contact dermatitis	27	18	8	1
Eczema, autogenous	1	1		
Neurodermatitis	5	3	2	
Nummular eczema	1			
Psoriasis, pustular	1		1	
Seborrheic dermatitis	1		1	
TOTALS	48	29	18	1

TABLE TWO

Results of Treatment of Dermatoses with Neomycin 0.5% and Methylprednisolone 0.25% in a Cream base Approximating the Composition of Skin Lipids

Diagnosis	No. Pts.	Good	RESULTS Excellent	Poor
Acne vulgaris	3	2	1	
Actinic skin	1		1	
Ano-genital pruritus	1		1	
Atopic dermatitis	4	2	2	
Contact dermatitis	20	11	9	
Dyshidrotic eczema	1		1	
Herpes simplex	2	2		
Insect bites	2	2		
Intertrigo	1			1
Neurodermatitis	3	1	2	
Neurotic excoriations	1		1	
Nummular eczema	8	7		1
Perleche	1	1		
Psoriasis	3		1	2
Pustular bacterid	2		2	
Seborrheic dermatitis	17	9	6	2
TOTALS	72	39	27	6

old woman with pruritus vulvae of thirty years duration had complete relief of her pruritus within one week of beginning treatment with methylprednisolone cream.

Side Effects: Two patients complained of burning sensations. One was a patient with contact dermatitis who was treated with methylprednisolone cream. The other was a patient with seborrheic dermatitis who was treated with neomycin-methylprednisolone. The latter patient experienced no burning when methylprednisolone cream was substituted. Neither patient showed objective evidence of sensitivity. There were no instances of primary irritation or allergic hypersensitivity.

COMMENTS

Both creams were especially well tolerated and cosmetically acceptable, a fact which I attribute to the special cream base approximating normal skin lipids. The base being less greasy than most ointment bases, these preparations were partic-

ularly effective in hairy areas — the scalp, the axillae, and the pubic regions. The neomycin-methylprednisolone cream was found to be especially valuable in the management of acne vulgaris which had been overtreated with drying agents. In dry eczematous dermatoses the creams were observed to be less drying than most lotions.

SUMMARY

One hundred twenty patients with dermatoses amenable to topical steroid therapy were treated with either methylprednisolone or neomycin-methylprednisolone in a special cream base approximating that of normal skin lipids. Ninety-four per cent of the patients manifested good to excellent results.

There were no instances of allergic hypersensitivity or primary irritation.

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The Community Emergency Health Program

George Moore, M.D., M.P.H.

Charlottesville, Virginia

There is no question that America will survive a total war if only we begin now to accept the challenge, a challenge which must be centered on keeping our nation strong internally as well as externally. Time could be running out and I pray sincerely that our nation has not procrastinated too long already. What will you do to help America?

184 YEARS ago tomorrow, an American school teacher was hanged by his neck until dead. A school teacher turned soldier in the defense of his nation, this man regretted that he had only one life to give to his country. In recent history another American in a similar situation seemed to regret that he had only one country to give for his life. Have times changed? Are we as a nation in serious danger? Is the average American losing his sense of challenge and becoming a self-centered amoeba-like creature drifting in a tide of material plenty without regard for either past or future? It seems to be the whole man who is in danger today. We have been freeing ourselves from drudgery but stand now in mortal danger of enslaving ourselves to a frenzied modernism that can sap our vigor and undermine our sense of challenge.⁽¹⁾

This lack of challenge seems to be reflected in the attitude many Americans manifest in Civil Defense today. Perhaps the most valuable

criterion with which to evaluate our current status of preparedness is the community Civil Defense program, for it is at community level that we must establish our front line of defense. It is here that the injured will be cared for, hospitals expanded ten fold, if necessary, emergency facilities improvised, supplies expended and health manpower utilized. It is here that ignorance or knowledge concerning radioactive fallout will affect life, death, or chronic disability for millions. The community is not only the first line of defense but it is an integral unit of survival, recovery, rehabilitation and eventual victory. In the immediate chaos following attack each community must emerge as an island of survival and expand rapidly for the re-establishment of communications, transportation, and resources in order to lend assistance to other communities. Such communities will coalesce to reinstate county lines, then State boundaries, and finally the sum total of all units, our Nation. As Office of Civil and Defense Mobilization Director Leo A. Hoegh has said, "Civil Defense is everyone's business." We must never forget that all of us are a part

¹Presented at the Ninth U. S. Civil Defense Council Conference, Minneapolis, September 21, 1960.

²General Health Services Consultant, DHEW, Region III, Charlottesville, Virginia.

of government.

Let us speculate for a moment on what might happen to a community which has neglected Civil Defense preparation. It is no doubt true that most non-target area towns in such a predicament would survive a thermonuclear war. Following the initial shock, survivors would begin to mobilize for the disaster and in typical early American fashion would bend their wills and strengths together to recover and help others. Private physicians would work around the clock without thought of recompense and public health workers would struggle against overwhelming problems of communicable disease, food and water pollution and lack of sanitation. Bandages and dressings will be used over and over again until they disintegrate. Surgical drainage will replace antibiotics and the dead would be interred in trench graves. The community would eventually recover as it has recovered from other disasters, large and small. Thus, in a sense we might say that we are prepared now considering the sum total of our basic resources, strengths and latent abilities but there is a factor, a very vital factor, that may cost us our freedom. This is time! The war is yet to be won and after our military forces have given their initial retaliatory effort, what then? Obviously the Nation which recovers first from attack should win. Without Civil Defense preparedness, national recovery sufficient to enable this Nation to support a continued military defense will require time, perhaps months and longer. An adequate national defense in the 1960's necessitates the immediate mobilization of industry, manpower, resources, transportation, communications, and a renewal of the will to live. The time required for effective recovery, therefore, is inversely related to the amount of effective Civil Defense preparation. The more Civil Defense preparation — the faster will be our recovery and the more certain we are of victory. Our basic challenge becomes quite simply a revival of the pioneer American spirit before it is too late.

What are the major problems of a community level Civil Defense health preparedness program and how can we meet them? The difficulties of community level health preparedness for Civil Defense are little different from

those of community level public health. Many factors responsible for poor or non-existent local health services are also answerable for a lack of Civil Defense preparation. In the same way that we need to awaken the public to the need for national security we need a rebirth of the evangelical spirit of public health. The ideas that drew us into the field of public service need to be rekindled and brought up again to a bright flame. This is something other people can learn to understand and with that understanding will come respect, acceptance, and support.⁽¹⁾ It is suggested that Civil Defense and Public Health should work together one for the other. The challenge of saving our democracy may serve to strength local health service and in turn the strengthening of medicine and public health becomes preparedness for disaster. Both public health and Civil Defense cut across the broad baseline of total community services and are affixed to a better and stronger America.

It is primarily for this reason that the Office of Civil and Defense Mobilization through the Executive Office of the President has delegated responsibilities in Civil Defense to other federal agencies. The Public Health Service, for example, now has been assigned full responsibilities in emergency health and medical services at the Federal level. This "built-in" concept is in congruity with the Civil Defense philosophy of the Federal Government. It insures Civil Defense as a natural function tied in with ongoing and day-by-day activities. In the future, a municipality requesting federal funds for a water purification plant should consider the protection of its water against radioactive fallout and chemical pollution. Hill-Burton funds for construction of hospitals and other health facilities may allow for special protective construction for patients and staff. Training for radiological health officers will include the problems of widespread radioactive contamination. Our Public Health Service Epidemiological Intelligence System will be tied in with defense against biological agents and laboratories readied accordingly. The Public Health Service is developing these concepts rapidly and through the Division of Health Mobilization, the "built-in" program is demanding special and immediate attention.

In fiscal year 1960, our Public Health Service Region III Office at Charlottesville, Virginia, was privileged to study and lead a "Pilot Program" among the States of Virginia, West Virginia, Maryland, Kentucky, and the District of Columbia. Through our program staff we were able to study ways and means of developing the "built-in" concept at community level. The goal of our regional program was the implementation of state and local operational survival plans.

The first problem of interest which has thwarted effective implementation of state and local plans is lack of funds. Funds are required for research and training and for payment to those who might seek training and employment if the rewards were greater. Full-time health personnel are needed at community level to act in the role of coordinators. Someone must weave together the complicated threads of Public Health and Emergency Health Services. Usually this is the responsibility of the local health officer but success is most apparent when a full-time qualified person is available to assist the local or district health officer. This person must be well versed in weapons effects, public health, medical care, hospital administration, training, supply, communications, community problems, persuasion and diplomacy. He must be able to relate Civil Defense concepts to on-going programs and offer substantive aid to busy public health workers and physicians.

To an extent, Region III has developed an approach to this problem. We have assigned full-time public health representatives to each State health officer for health mobilization purposes and recruited or activated up to 50 part-time commissioned officers of the Public Health Service Inactive Reserve to support community programs locally. These men and women represent private medicine primarily and give support to their local health departments on a cooperative basis. Later, a few hundred more reserve officers are to be given disaster assignments and training and will serve on a voluntary basis for health mobilization.

Public Law 85-606 was enacted recently and some federal money is now available to the states on a matching funds basis for personnel

and administrative expenses in Civil Defense programs. This bill tends to strengthen local and state Civil Defense agencies through the employment of full-time personnel.

The second problem is lack of public understanding. Universal acceptance for Civil Defense must be sought among physicians, nurses, allied medical personnel and public health officials. We have found that the health and medical professions are not really apathetic to health mobilization. They are vitally interested but endowed with normal human attributes and emotions. The words "Civil Defense" sometimes evoke an unpleasant psychological reaction since Civil Defense implies preparation for war. There are more pleasant things to discuss and for a few an attitude arises that the less we think about the war, the less likely it will be. Professional interest is usually latent but given a personal approach, understanding leadership, and some token of support from their Civil Defense agency, the physicians and allied medical personnel of America will respond to a national appeal for assistance. The ills of mankind surely are not far removed from the ills of patients.

The enthusiasm and support of our medical and health professions not only should be inspired but be maintained. Full-time health mobilization coordinators must continuously provide new ideas, technical information and essential personal contact. We should be able to persuade the public to accept a total health and medical program which will not be wasted even without war. Everything we do in health mobilization has a purpose and that purpose is to provide better health and a stronger nation. It must also be recognized that preparation against a major catastrophe is also preparation for a minor disaster simply by degree. And, for the sake of peace, a sound balance of Military and Civil Defense represents our best hope. If we are strong enough to withstand a massive attack without being irreparably injured, then any aggressive power will be discouraged in initiating a war. Certainly, if we can not be conquered, then there is no reason for war.

In Charlottesville, we have considered these and other psychological problems and utilized our regional health educators, mental health

people, nurses, public information and training officers accordingly. Each new step in the program has deserved minute inspection in order to insure the right approach. Our health information officer was recruited principally to assist the part-time reserve officers in the field and provide continual personal contact for community level problems.

The third problem follows quite closely. There is a lack of knowledge and policy for what is perhaps the most complex program ever to face our medical and public health professions. This is much the same challenge which faces our public health programs today. Research is needed into the intricacies of community health services. How can public health best serve the needs of the public and gain enough support to meet new and ever-changing demands? How can public health serve private medicine and effect a total approach to community health problems involving the whole family? The "built-in" approach to health mobilization is not simple. It requires much study and will be accepted by medical and health officials alike when proof is evolved that health mobilization is everyone's responsibility and not disassociated from everyday problems. Our daily trials are in no way different from major disasters except in magnitude. In war all of us will be forced to drop our on-going activities in a concerted effort toward survival and recovery. If we have laid a mutual foundation of strength this transition will be rapid and easy.

Our regional staff have begun to lay the groundwork for a successful "built-in" program. Health Mobilization personnel have intermixed with other office members and learned the enigmas of on-going programs, the hopes, disappointments and the successes. Conferences, work-shops and meetings offer a thorough understanding of what our people could do to strengthen fundamental programs and yet prepare for a major disaster. Only when our Health Mobilization staff and others agreed on a single program of action were we satisfied that we had attained a true "built-in" program. Thus, with training, personnel in "peace-time" programs become the principal agents of health mobilization. They can work with their counterparts in the State Departments of Health and,

in turn, the state people will assist local health departments.

One of the important conclusions of our study is an attentive regard for the mutual aid area concept. We consider this concept to be an instrument for the implementation of state operational survival plans as, for example, it has been in the States of Minnesota and Wisconsin. Most state plans call for a partitioning of the state into Civil Defense areas or regions for purposes of administrative control. A state may have five or six Civil Defense areas each representing one or more office of Civil and Defense Mobilization-designated target cities and their nearby support counties. It has been extremely difficult in the past to bring together the large cities and their support counties due to political difficulties and misunderstandings. Yet, get together they must, for in time of attack the target city populace must evacuate either immediately or later as fallout permits, to the support areas. Since the target city is lost for all obvious purposes, public services must be related to support county facilities. Rural counties, however, can not care for thousands of evacuees without outside assistance and must depend on target city health and medical personnel for support. Many 200 bed emergency hospitals have been prepositioned in support counties for target city personnel already but most large cities today have not prepared for utilization of these emergency units. Adequate pre-attack preparation in health mobilization for a target city requires that the medical and health professions from the entire area collaborate in a mutual aid program.

The approach has been to encourage the state health officers to organize civil defense area health and medical advisory committees consisting of public health and medical society officials from each county. Only when a group of counties confronted with the same problem can plan together with the target city and understand the sum total of needs and resources will they really be able to develop a workable program for mutual aid assistance. The success of Minneapolis and St. Paul in providing an efficient mutual aid program not only with their support counties but with the State of Wisconsin speaks for itself.

In 1952 I was detailed by the Public Health Service to the Asian Kingdom of Nepal to help institute a public health program. After completing a survey of the country's problems and developing a plan of operations in cooperation with the Nepalese Government, the first problem of implementation was overcoming the lack of health manpower. In the entire country of Nepal, with an estimated population of nine million, there were only nine qualified physicians. Where were we to turn? An obvious answer was to recruit good citizens, community leaders, and train them as health specialists. In

this primitive nation where people were living even without the benefit of the wheel, I shall never forget the response of the public to our plea for able volunteers. Hundreds of ex-Ghurka soldiers living on pensions and who had fought under British and Indian flags across the world emerged from their stone huts and applied for training. Old soldiers who had seen the outside world and realized the poverty of their own nation would stand before us, salute and say, "Sahib, we have come to serve. Show us how we can make our country better."

I. Hilleboe, H. M.: Public Health 1960, Health News, N. Y. State Department of Health, 37:7, p. 8-11, (July 1960).

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing elsewhere in this issue:

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DUKE R. GASKINS, M.D.
MEDICAL DIRECTOR

June, 1961

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The President's Page

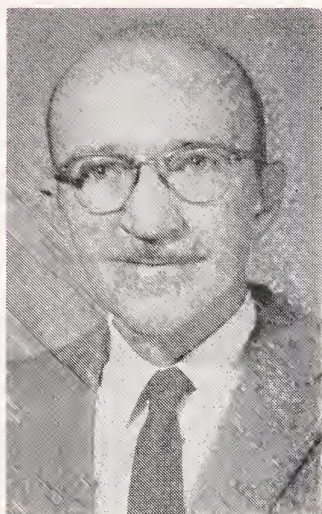
The Crucial Role of
Medicine in these Times

INAUGURAL ADDRESS

Leslie B. Smith, M.D., President

The Arizona Medical Association, Inc.

A year ago Doctor Melick drew for us a word picture of the man who was to succeed him as President, Doctor Lindsay E. Beaton. He portrayed a man of stature — a man with an exceptional academic background — a man of character, devotion and dedication with the graces of culture. Doctor Melick predicted that Doctor



Leslie B. Smith, M.D.

Beaton would serve us well. I have been privileged to spend many hours at his side in the conduct of the affairs of the Association which have verified Doctor Melick's prediction. He has been wholly unselfish — having spent weeks away from home, his family and his practice without financial reimbursement. He has spent many untold hours at home, while the wee hours of the morning slipped by, in study and deliberation.

Doctor Beaton's pattern and quality of performance is nothing short of frightening to me. To try and itemize his unique personal contributions to this organization would require the remainder of this hour.

I have never approached an assignment

(President, Arizona Medical Association) with more diffidence and fear, because of my knowledge of the significance and vastness of the duties of this office. As President of the Arizona Medical Association, I realize that my every act and utterance will be critically scrutinized. What I say or do, or do not say or do, will reflect upon each of our over 1,000 members, and will also be significant to the stature of the entire medical profession and its 250 thousand physicians.

Reminiscing is frequently a sign of aging — a characteristic of those past maturity — you younger members of our medical association may be inclined to find it such. However, those of you who have attained my 55 years of age will readily deny that to reminisce is a sign of senility which precludes a vision of the future, because we cannot accurately judge the present or plan for the future without a review of the past.

My first official contact with the Arizona Medical Association was 24 years ago, as a delegate from Maricopa County. In those days, as was the custom, delegates were "elected" by appointment from those who were going to the State Meeting. I held up my hand and was duly elected, having been in Arizona less than one year.

Three of us newcomers invaded Yuma in 1937 for our first visit to that now bustling

city. The House of Delegates was scheduled to convene at 9:00 A.M. We, who traveled together, were 3 minutes late. As we ascended the stairs to the meeting room, a doctor inquired of us as to where we were going — we stated with due dignity befitting our esteemed position as delegates — that we were delegates from Maricopa County on our way to the House of Delegates. This friendly physician quickly informed us that the meeting was already over — hence our mission was concluded. He further stated that, "We have already taken care of everything." I have been perplexed for 24 years, wondering who were the "we" referred to, and what things they had taken care of in 3 minutes. This was my introduction to the business side of the Association — but times have changed.

The membership of the Arizona Medical Association has grown from 268 to 1,112 during my membership time of 25 years, and its office staff has increased from 1 to 8. The business of this Society has grown from a few items handled quickly, as I mentioned, in 3 minutes at the Yuma Meeting, to where recently in a single meeting of your Executive Committee, 90 separate items were on the agenda — which required 11 hours to process — also the same group spent 6 hours the next day in deliberation on Society activities with the Board of Directors. Your Board of Directors discussed approximately 300 items in their 5 sessions during the past year. I must emphasize that all these deliberations and the resulting actions were positive and not negative.

Medicine has too frequently and unjustly been accused of being negative with no positive program. Anyone who would even casually review the activities of this relatively small State Society would be irrevocably impressed with the fact that Medicine — organized and individually — is positive and not negative in its programing. Medicine always has been, and will continue to be, the bulwark for the promotion of the science and art of medicine and the betterment of the public health for the benefit of all people.

Our adversaries, who nurture socialization, have been largely responsible for the creation of the "negative image" of the doctors, because it is politically expedient to augment their power. Remember that duplicity is their most frequently employed procedure. Whether anyone is positive or negative is wholly dependent upon the

phrasing of the issue. Sin is condoned by some; hence, to be against sin in this instance, would be a negative stand. It certainly is not negative to be positively against the destruction of that which has proven to be paramount in the achievement of the best medical care. There is no substitute for the best.

The members of the Arizona Medical Association, besides being part of the second most rapidly growing state in the Union, have also had to react to the threatened changes in the basic principles of our entire social-economic-political existence. We are a part of an ideological war.

A few years back we, as practitioners of medicine, devoted our time primarily to the basic medical, scientific and philosophic tenets with little diversion by any threat of destruction or alteration in our basic freedoms.

As a Nation, we have faced and successfully subdued threats to our existence in the past. We had a Civil War between the States; World War I, which subdued the imperialistic ambition of Kaiser Wilhelm; then came World War II, when it was necessary to sacrifice the lives of many Americans to save the world from the dictatorial psychotic lust for power precipitated by Hitler. This took many of us away from our homes and our patients, I was gone for 5 years. These assaults on the freedom of men were, for their times, formidable; however, they were mere "brush-skirmishes" as compared to the present threat to our continued existence as a free Society by an ideology which would make us slaves by centralized regulation.

Today, we are faced with an ideologic force which proposes to reach its goal of human subjugation — not in one generation or lifetime but in several — by insidious infiltration. The present danger was initiated by Karl Marx — implemented to power by the paretic Lenin and those who have followed him. They have ruthlessly foistered their regimentation upon almost one billion of the peoples of this earth. Their doctrine destroys human incentives and productivity by substituting a promise of Utopia, with its bountiful existence without individual effort. It proposes a Classless Society, but fails to acknowledge that such is impossible until all people are born more similar than identical twins. This is the threat that comes from beyond our boundaries.

There is a second assault upon our existence as free people and this is from within our boundaries — by those who are forcing socialistic doctrines upon the unsuspecting complacent populace. The best authority for this could be none other than Khrushchev, who has stated — “Your Country (U.S.A.) is becoming so socialistic that in 15 years there no longer will be a basis of conflict between our two countries.” Thus we are threatened from beyond, but more important is the evil from within.

Why have I injected this so-called “non-medical political material?” My answer is simply that it is not non-medical in its broad aspect. All things which affect human behavior have an impact upon each individual’s mental and physical health. It is axiomatic that the health of the people cannot be separated from their social, economic, emotional and political existence. Therefore, whenever government threatens to modify the welfare of the people, we, as guardians of their health, must be actively concerned. The health of our people is our prime objective.

Medicine has been caught in this conflict of political ideology — freedom, which is essential for health and happiness, versus slavery to government with all its ills of undue stress.

The changes in our government during the last 30 years, with its tentacles reaching out for centralized bureaucratic control of the every facet of our lives, unmistakably points toward the completion of socialization. The direction of travel of the socializers is now clearly evident. It can no longer be said that a little more socialization will not hurt or noticeably affect us. A little more, plus a little more, plus a little more finally add up to equal the total. The “straw” to break the camel’s back has now been selected — the socialization of medicine. If this is added to the already sagging back of the camel, it will be permanently broken and all will be lost.

The Anderson-King Bill, HR 4222, the successor to the Murray-Wagner-Dingle and the Forand Bill, and the Administration’s program alleged to be for the care of the aged, have been admitted by the Socialist Party, Forand and some spokesmen for labor and others as the major necessary legislation for their goal of the total health care administered by the Government. We must call it socialism because the

Socialist Party has so recognized it and I quote, “It’s begging the question to attack such an approach to our medical needs on the grounds that it is ‘socialistic’ as indeed it is — we can do everything to encourage federal intervention on bit-by-bit basis — once the Bill is passed, this nation will be provided with a mechanism for socialized medicine.”

“Traditionally, one of the easiest first steps in imposing statism on a people has been government paid medicine. It is the easiest to present as a humanitarian project” (Ronald Reagan) because no one wants to be known as opposing care for the sick whether they need additional care or not.

Lenin stated that the socialization of medicine is the keystone to the arch of the Socialistic State.

Senator Robert S. Kerr, Democrat, Oklahoma, recently outlined the social-political obligations of the medical profession. His was a sober and challenging speech which outlined our duties, not only as doctors, but also as political citizens. He bluntly stated, “You doctors can keep out of politics, but you cannot keep politics out of your business.” In reference to our ability to help stop the onrush of socialism by the socialization of medicine through the present proposed legislation, Senator Kerr challenged, “If you (medics) fight the battle and win it — and win it you must — because all the peoples of the world need you to do so — such an accomplishment will surely be equal to all your scientific achievements. Your cause is right. None of us or the other citizens will be free by a program in Washington — the Anderson-King Bill is such a program.”

We in medicine have become too browbeaten by some political planners and their ability to control some segments of the press, which espouses to express public opinion. With dignified naivete, complacency and timidity, we have, to some extent, forgotten and ignored our potential as our “brother’s keepers.” We dare not further forsake our obligated professional purposes or our duties as citizens.

There were five doctors who invested their time and thoughts in formulating the Declaration of Independence and risked their lives by attaching their signatures to this document. With unselfish sacrifice, they gave of themselves so that the generations to follow would enjoy free-

dom. Can you or I do less?

In this young growing state we have many young members. We are proud of you younger members and invite your greater participation in your Society activities. You, as well as all of us, are charged, not only with the destinies of our chosen profession, but also, knowingly or unknowingly, with the responsibility of helping protect the future social freedoms of all. Our patients look to us, their doctors, not only as ministers of their health, but also as educated leaders, from whom they seek and expect advice relative to all things which affect their total being. This is their image of the beloved "country-doctor."

How shall we meet our challenge? First, we must continue to promote and render the best medical care with considered devotion. Secondly, we cannot longer procrastinate with tangential issues.

Do you stop long enough from your busy practice to meditate about things other than pure scientific medical subjects? Have you recently reviewed your experiences of the past to determine those things which have been responsible for success and happiness? Have you duly contrasted your way of life and all those about you with the plight of those who live under other forms of government? Have you conscientiously charted your role to fulfill your obligations to the future society? Are you guilty of a myopia in which you cannot see into the future?

Some of you may be somewhat surprised to learn that there is reason for optimism and that there is no justification for an attitude of defeatism or acquiescence. The political structure of this country is still such that we can prevent the addition of the last straw — socialized medicine. This has been determined by political analysts to be a fact. Non-medical students of politics are telling us that the torches of liberty and freedom are inherently in the hands of the medical profession. They say that we must win the fight to prevent the enactment of Forand type of legislation, because it is truly Socialized Medicine — which is the major remaining hurdle before the completion of the Socialized State. Because of this, our crucial role, we are the ones upon whom the attack has been centered.

We must be fully aware that the critical attack on medicine, and its doctors, is political

and not moral.

Political analysts have assured us that we can win if we will take a little time now to, first be informed ourselves, and second, to pass these truths on to the over two million patients whom we see each day and to all others. We must also inform our representatives in government as to our views and encourage others to do likewise. As Senator Robert Kerr recently challenged, "unless you do this, be prepared to suffer the consequences."

It requires only a little reading and study to acquire the proper knowledge. Your AMA News is an excellent reference. Doctor Edward R. Annis — one of our greatest benefactors — recently related that after one of his presentations a friend asked — where do you get all the facts, figures and material that you use? He told his friend that on that occasion almost all of his knowledge had been obtained from the last two issues of the AMA News in 40 minutes time. Your AMA has also prepared kits, many pamphlets and other publications which are available.

Your AMA, which is you, is now launching a Herculean effort to win this battle which will determine whether our Republican form of government shall prevail or be replaced by a Socialistic ideology. You will be further briefed on our strategy. Your AMA has awakened with resolute determination, proper perspective and professional know-how. We must awaken and join the fight if we are to survive. You will be agreeably surprised at the magnitude and quality of our program.

We must brighten our light so that all may see and lift our voices so that all may hear and learn the truth. The light of truth shall prevail, but only if it is seen and not if we continue to allow it to be covered by our opponent's baskets of deceit.

A psychiatrist once told me that doctors are best classified as "Mothers" — if this be correct, then let us recall that from time immemorial, Mothers have not been warriors but as Mothers, they will belatedly make the last ditch stand and vehemently protect their charges. We are now approaching the "point of no return" and true to our tradition, we will assume our character with its determined "do or die" fight, not for selfish gain, but for the benefit of all mankind.

In summarizing — we have been assured that we can win. The political composition of Congress is favorable. The amount of time left is sufficient to allow proper action. However, all this optimism is predicated upon our becoming duly informed with the truth and communicating with the people and our legislators.

If we love medicine and respect the welfare of our patients, we will accept our work load. This is not an assignment merely for tomorrow and the next day — our efforts will have to be extended over many years to come. The preservation of freedom will require eternal vigilance.

A Virginia coal miner is credited with having said — "When little men cast long shadows — the evening sun is about to set." — paraphrasing, "when insincere politicians cast long shadows, the bright sun of liberty is about to go down."

If we join together, my diffidence and fear can be transposed to noble achievements and the advancement of health care for all. We must keep our ranks closed if we are to succeed in dispersing the pall of political envelopment.

I pray that you will all help and that God will guide us in the fulfillment of our obligations.

Gentlemen, let us proceed.

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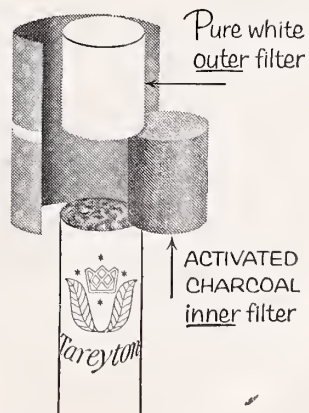
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In patients with edema induced by the earlier corticosteroids or from other causes, diuresis and sodium loss often occurs with triamcinolone. (Fernandez-Herlihy, L.: *M. Clin. North America* 44:509 [Mar.] 1960.)

SPECIAL PROBLEM: APPETITE STIMULATION AND WEIGHT GAIN

In contrast to the heightened craving for food sometimes seen with other corticosteroid compounds, appetite was unaffected by triamcinolone. (Cahn, M. M., and Levy, E. J.: *Am. Pract. & Digest Treat.* 10:993 [June] 1959.)

SPECIAL PROBLEM: HYPERTENSION

When ARISTOCORT was given to patients with dermatologic disorders for long periods, there were no significant changes in blood pressure. (Kanof, N. B.; Blau, S.; Fleischmajer, R., and Meister, B.: *A.M.A. Arch. Dermat.* 79:631 [June] 1959.)

SPECIAL PROBLEM: PSYCHIC STIMULATION AND INSOMNIA

Ideally, corticosteroid therapy ought not to add to the psychic component in dermatologic disorders, nor induce insomnia which will intensify the patient's itching and irritation. ARISTOCORT Triamcinolone has been singled out for its remarkably low incidence of psychic irritation and insomnia. (McGavack, T. H.: *Nebraska M. J.* 44:377 [Aug.] 1959; Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

SPECIAL PROBLEM: SEVERE CARDIAC DISEASE

Elderly patients with pulmonary emphysema due to impending heart failure who required corticosteroid therapy showed that triamcinolone could be employed with benefit and relative safety. (McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 [Dec.] 1958.)

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. In the treatment of allergic and inflammatory dermatoses, dosage should be individualized and kept at the lowest level needed to control symptoms. Dosage should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

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Research in the Service of Medicine

Editorials

American Medical Association
Television Program?

An A.M.A. circular under the heading “A.M.A. Launches New Campaign to Help Public Cut Health Care Cost” states that the purpose of the new Commission on Medical Care Costs, under whose aegis this campaign is being launched, is “to find answers to the many questions being raised about medical care costs and to present the findings frankly and fourthrighly to the medical profession and to the public.”

It is not stated in this news release how these findings are to be presented to the public. It is to be hoped that the campaign is not going to be handled by pamphlets to be placed in doctors’ offices. This would probably be the most useless way of spending A.M.A. funds. Is it not about time that the A.M.A. start using the medium best suited to public education in our era, the medium of education most neglected

ARIZONA MEDICINE

ARIZONA MEDICINE	
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CONTRIBUTIONS

- The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.
- Certain general rules should be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:
1. Follow the general rules of good English or Spanish, especially with regard to construction, diction, spelling and punctuation.
 2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
 3. Be brief, even while being thorough and complete. Avoid unnecessary words.
 4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
 5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
 6. Exclusive Publication — Articles are accept for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
 7. Reprints will be supplied to the author at printing cost.

Editorials of Arizona Medicine are the opinions of the authors and do not necessarily represent the official stand of The Arizona Medical Association. The opinions of the Board of Directors may be sought in the published proceedings of that body.

— television? Why cannot a television program be dedicated to such important aspects of medical care as: "What to look for in a Health and Accident Insurance Policy;" "What are the Blue Shield and Blue Cross organizations;" "Why you should buy Health and Accident Insurance;" "What you should know about Drugs and Medicines;" "How to choose a doctor;" "What do we mean by free choice of doctor;" "What do we mean by doctor-patient relationship;" "What does the A.M.A. do about doctors who abuse their profession;" "How does the average M.D. live;" etc., etc., etc.

How will we finance such an ambitious program? Well, if a program like this is conducted on a high level of taste and in a cultured way, what good reason could be used for not accepting an ethical sponsor. Why should not ethical drug companies be allowed to sponsor such a program. With tact, vision and truth of purpose, such a program can give a rebirth of the public image of the medical profession. But it will need to come from those sections of our upper echelons who have progressive vision and not from our "cut-off-your-nose-to-spite-your-face" echelons.

I would predict that such a program as envisioned here will capture the imagination of the public, and would recruit new and enthusiastic material for our medical schools. People would rather see such a program, sponsored by ethical companies, than see little girls on television commercials advertise the benefits of deodorants or little boys advertising the wonders of mild cathartics. The public may have a distorted image of the M.D. But certainly many television sponsors either have a debased image of its viewing public, or the public image of itself needs to be refurbished. Our profession can play a leading role in a general rebirth of taste, values and national purpose.

André J. Bruwer, M.D.

EDITOR'S NOTES

It is desirable that we establish a routine, customary and accepted policy for the disposal of clinical records kept in a doctor's office. This is of primary concern at the time of death of a doctor. However, there should be an accepted

time interval for maintaining all medical records, X-rays included.

How should these records be made available to another doctor? Should there be a central clearing house, such as the office of the respective county medical society?

The haphazard course now followed could be standardized. A customary practice would be more acceptable for patients, insurance companies, and at times the legal profession.

* * *

There have been unjustified demands in prescribing Class A narcotics over the telephone by some physicians . . . unjustifiable and illegal demands upon the pharmacist. Those instances which are occurring are inexcusable. This procedure must be discontinued.

* * *

From the comments of the Treasurer at the recent State Meeting of ARMA, it might be interpreted that the journal is a financial drain upon the Society. The auditor's report shows that for the first time this publication has become a self-sustaining unit . . . we hope simultaneously an improved one, in spite of the dire predictions of our former publisher, who must remain unnamed.

* * *

Arkansas, South Dakota and Tennessee permit the corporate form of practice for professional men. Kentucky, Georgia, Indiana, Iowa, Minnesota and New York have bills pending that would permit professional men to incorporate. In view of the tax advantages involved, it is desirable that this be investigated for Arizona.

* * *

The Kerr-Mills Medical Aid Bill has now been an established law for one year. The AMA and ARMA supported this legislation vigorously. But few steps have been taken in Arizona to expedite this Law and its accompanying advantages for the elderly who cannot afford to pay for their medical care. This delay can only play into the hands of the proponents of the Forand-type bill. Action by our legislative committee and our legislature is indicated.

* * *

NINTH ANNUAL ARIZONA CANCER SEMINAR

It is possible to develop growth inhibitors or cancer therapeutic agents which act by inhibiting enzymatic reaction essential to cell production. This is the mode of action of the folic

acid antagonists. However, some cells in leukemia will have two to sixteen times the normal amount of growth enzyme present. This excess enzyme may be a genetically linked characteristic. While the action of the drug is selective and suppressive in effect, the excess enzyme permits the drug to be effective only for a limited period. The cells producing an overabundance of the enzyme will propagate and in them the antagonist is no longer effective. Thus, with a limited period of effectiveness for the drugs now available there is necessity for multiple methods of chemotherapeutic approach in the cancer patient.(1)

Immunological factors may play a role in the defense mechanism of the body against cancer. One must consider the cell-fixed antibody, the serum antibody, the complement and the phagocytes. It is likely that the complement and the phagocytes must be the site for our defense, a non-specific defense against malignancy. To date no specific antigen has been found in human cancer.(2)

Auto-transplants of cancer cells will grow in only approximately one-third of the cases, and this third is in the group of patients with advanced malignancy. Apparently in this group the patients have lost their own defense mechanism, probably in that segment of the non-specific defensive factors of immunological defense. These are not single cell implants, they have never been able to grow implants where less than 1,000,000 cells have been implanted.(2)

Dr. Ham has shown that a transplanted virus may cause both necrosis and a proliferative phase in the host organ. In producing these changes the virus in itself may be present only during a certain phase of the disease, and it probably will only develop in an incompletely developed organ.(3)

Dr. Bateman uses Thio-tepa in a local dose of 60 mgs. (10 mgm. per 1 cc.) in the average case or 45 mgs. in the poor risk patient. Intravenously: 0.2 mg. per kilogram at the time of surgery and on the second post-operative day. Cytoxan is injected locally, 800 mgs. in the average patient, 600 mgs. in the poor risk patient. If it is used intravenously, 8 mgs. per kilogram for three days, in the average case.(4)

A probable carcinogen for lung cancer in man, Benzopyrene exists not only in cigarette smoke, but also in the fumes from the auto exhausts. Some carcinogens present in both cigarette smoke

and exhaust fumes may be antagonistic to each other. In the pulmonary brochus and bronchioles there is a retention of particle size of .2 to .3 mu. The mucus flow of the respiratory epithelium can be completely paralyzed by an adequate stimulation of these retained particles, which are then retained permanently. The protein of the epithelial cells will dissolve these irritant carcinogens, and the generative cell is the one that is susceptible to the effect of the carcinogen.(5)

Kaplan — D N A resides in the nucleus. R N A resides in both the nucleus and cytoplasm. The virus may enter the cell and produce gene change directly. In ovarian granulosa cell tumors there is a disturbance in the "feed back mechanism." For example, if an ovary is implanted into the spleen, the portal system removes the hormone prior to the hormone stimulating the pituitary. This master hormone continues to give stimulating signals to the remaining ovary with added stimulation and in turn tumor formation.(6)

Subcutaneous sarcomas have been stimulated in 50% of the cases with imbedded plastic. The formation of the sarcoma is not related to a chemical stimulus or the purity of the plastic imbedded. The impervious nature of the film is the important factor. The carcinogen effect is due to a disturbance to the growth polarity, and to the growth equilibrium.(6)

Azauridine is stable in the human, antagonizes cellular enzymatic action, has an affinity 15 times greater for the enzyme than the normal metabolic product. It interferes with the biosynthesis of D N A. No toxicity in man has been noted in doses up to 100 mgs. per kilogram. It is effective in acute leukemia. It is not absorbed well from the G I tract.(1)

Five FU (fluorouracil) is found more toxic in dogs than in man, but it is quite toxic to man and objective response is not obtained in patients without obtaining a toxic level. If stomatitis of the lower lip is obtained it is a pathogomonic sign to discontinue the drug. They have had a 35% effective response in patients with cancer of the breast and 25% satisfactory response in patients with cancer of the colon. This response means a decrease in lesion size, the patient improving, and the downward weight curve being stopped. For five days 30 mgs. per kilogram is given, on the sixth day none, on the seventh day one-half that dose is given, the

eighth day none, the ninth day one-half dose, etc., etc., to the level of toxicity. They continue to give this medication every month even if the patient is clinically free of disease. If the tumor recurs, however, it is resistant to this chemotherapy. At the time of second look procedures they have found carcinoma to be present in the patients who are symptom free, but the tumor has been held in quiescence. F U R D R has proven better in animal tumors. In patients it has been used in those in good physical condition. Probably it has a lesser toxicity with greater effect on the disease than FU. It will pass the blood-brain barrier. The drug has been found to be eight times as concentrated in the tumor as in the surrounding tissue, but there is a variance from patient to patient. If it is given by drip it is more toxic than if it is given rapidly at the dosage of 30 mgs. per kilogram.(7)

The cell membrane is a characteristic of the sex, there is a difference in the diffusion rate, it is greater in the male. In lung cancer as in other tumors the uniformity of histo-pathologic pattern is a rarity, certainly the morphology does not reflect the etiology of the tumor. There is probably a multiplicity of factors associated with the etiology of most or all malignancies.(5)

Oxygen is one of the most important radiosensitizers known at the moment. A tumor is three times as radio-resistant in the presence of a high level of nitrogen. However, the air tension of oxygen is about all that is necessary to reach the oxygen level plateau.(6)

If we could eliminate the hypoxic group of cancer cells it would be extremely helpful for this is likely the source of recurrence. In man the nitrogen level can be markedly increased in about one minute. This gives real (two-fold) protection in the normal issue, without reducing the X-ray injury to the tumor.(6)

Darwin W. Neubauer, M.D.

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3. Ham, Arthur W., M.B., Head, Department of Medical Biophysics, University of Toronto, The Ontario Cancer Institute, Toronto, Canada.
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5. Kotin, Paul, M.D., Paul Peirce Professor of Pathology, University of Southern California School of Medicine, Los Angeles, California.
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It was found that as little as 3 ounces of a California Burgundy could lower the emotional tension index in normal humans exposed to controlled conditions of extreme stress.


The tranquilizing effect of wine appears to be greater and yet smoother than that produced by most other beverages, and perhaps safer than that of the usual synthetic pill.

Other Physiological Actions and Clinical Roles—The above is just one of the many interesting research studies now being conducted on the physiological effects of wine.

Based on recent findings, the modern Rx uses for wine—in convalescence, cardiology, urology, geriatrics—are discussed in “Uses of Wine in Medical Practice,” Wine Advisory Board, 717 Market Street, San Francisco 3, California.

*Silverman, M.: 48th Quarterly Meeting, Soc. Medical Friends of Wine, Jan. 13, 1960





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Topics of Current Medical Interest

Review of Medical Aspects of Air Pollution

AN INTERNATIONAL CONFERENCE

HELD IN VIENNA, AUGUST 29, 1960

Science Information Bureau, Inc., of New York City whose sponsorship is not indicated in their publication, organized a conference on air pollution during the Sixth International Congress on Diseases of the Chest of the American College of Chest Physicians at the University of Vienna. This conference, held at the Imperial Hotel, Vienna, August 29, 1960, was attended by physicians with wide experience in diverse scientific disciplines.

In general, the statements of the various speakers were not documented and were matters of opinion. Among the more interesting points were:

The annual economic loss in the United States due to atmospheric pollution is estimated to be about 1.5 to 4 billion dollars.

South Africans, the world's heaviest smokers, had a lung cancer rate that was less than half the rate in Britain. British immigrants to South Africa had a lung cancer rate that was 44% higher than the South African-born rate.

One city in South Africa, Durban, had a lung cancer rate that was higher than two larger cities, Johannesburg and Cape Town. Apparently Durban has an especially serious air pollution problem. It is a small Los Angeles. The lung cancer rate of British immigrants in Durban was the highest of all groups in South Africa. It has actually reached the fantastic level of more than one in six of all male deaths between 45 and 64 years. Durban's pollution compares with that of central London.

Similar reports were submitted from New Zealand. Immigrants from Britain, when compared with people born in New Zealand, had a higher incidence of lung cancer. Even children, who left Britain before the age of 15 years, showed a 30% increase in the chance of lung cancer compared to the New Zealand-born.

In Japan, Yohokama asthma is cured by change of climate indicating the strong influence of air pollution. This asthma does not occur with greater incidence around May, when the dustfall is greatest, but occurs more frequently in winter, when suspended dust and SO₂ are highest. Lung cancer has recently been increasing rapidly in Japan and is particularly high in areas where the atmosphere is highly polluted.

From 1948 until the present, the rate of lung cancer deaths has increased in Japan about four times. The mortality from lung cancer is considerably higher in Tokyo and other industrial cities than for the country as a whole.

Foreign-born immigrants to the United States from 12 countries definitely do have a higher lung cancer rate than the native born of the United States. Immigrants from England and Wales have a much higher rate for lung cancer than United States natives. Apparently, the amount of tobacco smoking is approximately the same among the foreign-born and the natives. The higher lung cancer rate among the foreign-born applies not only to the urban areas but also to rural regions. In addition, the female immigrants from 11 countries showed an excess lung cancer rate, some to a marked extent over native U. S. females.

Among the iron miners of France an incidence

of 3.2% of bronchogenic carcinoma was found in 1,000 miners who were continuously exposed to dust in cutting mine tunnels, while an incidence of 1.5% of a like number of mine employees such as clerks and engineers had developed lung cancer.

Chronic bronchitis, bronchospasm and bronchial asthma are most prevalent where air pollution is most severe. In Durban, South Africa, which has a high lung cancer rate, also has a bronchitis rate that is three times higher than any other city in that country.

The need for research to define the characteristics of the air pollution problem was strongly emphasized. In addition to studies on the kinds and sources of air pollutants, epidemiological and biostatistical investigations from the clinical point of view are required.

Hugh H. Smith, M.D., M.P.H.

CONSCIENCE IN MODERN MEDICINE

Last fall Dartmouth and the Dartmouth Medical School sponsored a major academic convocation on the Great Issues of Conscience in Modern Medicine.

The participants included such men as Aldous Huxley, the author; Sir Charles (C.P.) Snow, author of the recent book, "Science and Government;" Rene Jules Dubos, microbiologist of the Rockefeller Institute; Dr. Brock Chisholm, former director-general of the U.N.'s World Health Organization; and Dr. Wilder Penfield, former director of the Montreal Neurological Institute at McGill.

The proceedings were videotaped for the National Educational Television Network and will be shown in a series of three 90-minute programs, "Conscience in Modern Medicine," as follows:

KUAT, Tucson

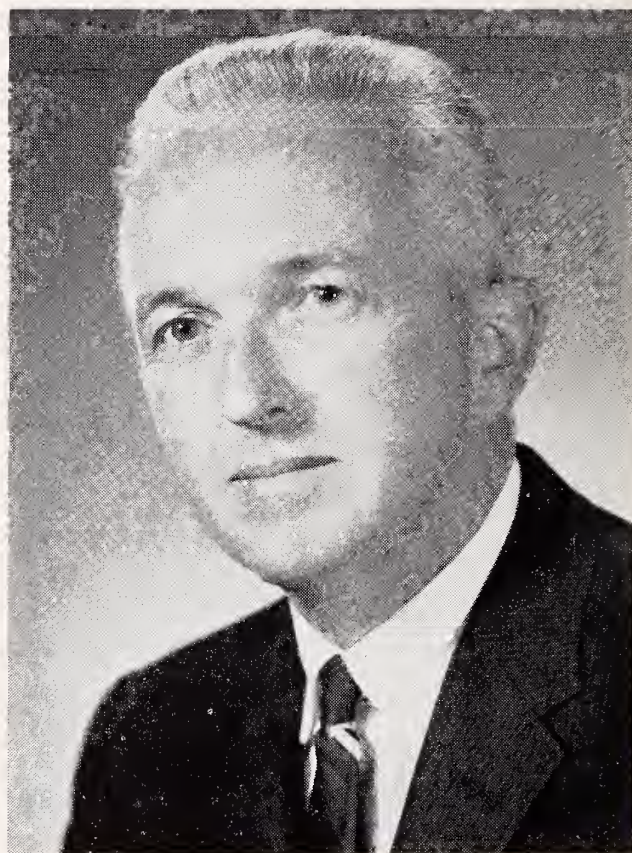
1. Monday, June 12 — 8:00 p.m.
2. Monday, June 19 — 8:00 p.m.
3. Monday, June 26 — 8:00 p.m.

KAET, Phoenix

1. Thursday, June 29 — 8:00 p.m.
2. Thursday, July 6 — 8:00 p.m.
3. Thursday, July 13 — 8:00 p.m.

ARIZONA BLUE SHIELD — ANNUAL MEETING

At the annual meeting of Arizona Blue Shield on April 27 at the Safari Hotel, Scottsdale, Woodson C. Young, M.D., Phoenix, was elevated to the presidency of the Plan's Board of Directors. He succeeds William G. Payne, M.D., Tempe. Other newly elected officers were: President-Elect, Marcy L. Sussman, M.D., Scottsdale; Vice President, M. W. Phillips, M.D., Prescott; Secretary, Carl A. Holmes, M.D., Phoenix, who was re-elected to this post; and Treasurer, E. N. Holgate, Phoenix, who previously served the Plan in this capacity.



Woodson C. Young, M.D.

Elected to new terms to the Board were: Dr. Payne, Dr. Sussman, Dr. Phillips, Holgate, Frank A. Shallenberger, Jr., M.D., Tucson, and Judge Francis J. Donofrio, Phenix.

L. Donald Lau, Executive Director for the prepayment plan, pointed out in his annual report that Blue Shield had now attained 211,225 members in this State as of December 1960. Gross enrollment in this category was the highest

ever recorded, reaching 74,048. In other Blue Shield categories, the In-Hospital Medical coverage reached a new total high, 118,321, and the Diagnostic Laboratory and X-ray enrollment now lists 54,000 members. Recently 23,733 federal employees were enrolled under the Arizona Plan in connection with the Federal Employees Program.

Total Blue Shield income for 1960 was \$3,623,232. Of this amount, the largest ever paid to physicians, \$3,271,467 went to provide care for the Blue Shield subscribers. Lau pointed out that slightly over 90c out of every dollar was used, or will be used, from this income for the care of members. Operating expenses for the Plan during 1960 amounted to approximately 10c out of every dollar's income.

SOCIAL SECURITY FACTS HAVE BEEN DISTORTED AND MISREPRESENTED

The truth about this country's social security program has been distorted and misrepresented to the American people and "important political and economic consequences" may result when the facts are ultimately understood, according to an insurance actuary writing in the April 8 issue of the Journal of the American Medical Association.

The article, entitled "The Coming Din of Inequity," was written by Ray M. Peterson, vice president and associate actuary of the Equitable Life Assurance Society of the United States.

Peterson declared that:

1. The public is being given the false impression that the method of financing the social security program possesses many of the unique characteristics of voluntary private insurance which the people have learned to value highly.

2. The program has been misrepresented as being a "time-tested" and "tried and proved" system of financing old age benefits.

3. The people are being given the mistaken impression that social security benefits are paid out of accumulated reserves, similar to private insurance programs, when in truth the program is financed almost entirely on a pay-as-you-go basis with benefits paid out of current income.

Peterson noted that "a great national debate

is now in progress as to the issue of providing medical care and hospital benefits under the Social Security System."

"That debate," he said, "can be pursued intelligently and wisely only if we understand the true nature and implications of the social security financing mechanism."

He said that a national old age pension program can be financed on a pay-as-you-go basis, a full-reserve basis, or some combination of the two.

Full-reserve financing is a "prepaid system" in which benefits are fully paid for during the years before they are received, he said.

"Full-reserve financing in the field of private insurance is the test of actuarial soundness and it is the only concept of actuarial soundness with which the American people are generally familiar," Peterson said.

He pointed out that under private insurance, all money paid into the insurance fund together with all income from investment is sufficient to pay all promised or guaranteed benefits.

Pay-as-you-go, on the other hand, means that the government raises through current taxes just enough money to pay the cost of benefits currently due, he said.

"No reserve is accumulated, no element of prepayment is involved," he said. "Money is raised as and after payees become eligible to receive benefits. In this latter sense, 'pay-as-you-go' is really a postpaid system of financing.

He added that the fiscal soundness of a government program depends "mainly on the taxing power of the government."

Peterson declared that the 80 per cent of social security taxes paid for the old age pension portion of the program (20 per cent going to survivor and disability benefits) would buy for new entrants 40 to 60 per cent more in old age benefits under an insurance company group annuity program.

He pointed out that from 1956 through 1965, tax collections for the program will total \$115.1 billion while benefits and expenses in that period will total \$114.5 billion.

"These figures clearly show that we are now almost completely on a 'pay-as-you-go' or 'hope as you pay' basis," he said.

He said the true nature of social security financing is also "vividly reflected" by the gap between the value of benefits owed to current beneficiaries and the amount of money in the

trust fund.

If taxes paid into the fund had been stopped by Congress last year, Peterson said, the \$20.2 billion in the fund would have paid only 23 per cent of the \$88.3 billion of obligations to current recipients.

And if tax contributions are cut off in 1965, he said, the estimated \$23.1 billion which will be in the fund will pay only 20 per cent of the \$114.2 billion of benefit indebtedness owed to the then current beneficiaries.

There would be nothing left over for the millions who had paid taxes to the program but had not yet qualified for benefits, he said.

Peterson stressed also that young workers and those who enter the labor market in the future, together with their employers, will pay more in taxes than the workers will receive in benefits because they must bear a growing burden of indebtedness. This indebtedness arises, he said, from the fact that most present workers and those now receiving payments will have contributed, together with their employers, a great deal less than the actual obligations.

He said there is a "dawning realization" that Americans have but one choice — to pay interest on this debt "forever" since the only way to reduce the debt is for a given generation to build up a huge reserve over and above present payments solely to meet program obligations. "To expect this to happen is to be politically and economically unrealistic," Peterson said.

He said the debt arising from these unearned benefits has climbed from \$150 billion in 1952 to about \$300 billion under the existing program. It will rise even higher, he said, if Congress adds to the program without a tax increase high enough, as to present workers, to meet the additional cost.

Peterson quoted several public figures who have likened social security to pre-paid private insurance. These include President (then Senator) Kennedy who had called social security a system of paid up insurance and a way of saving money for old age so the elderly won't be a burden to their children.

He said there "is no foundation for these inaccurate parallels" with private insurance.

"Indeed, there is desperate need to dispel these self-mesmerizing, foggy concepts," Peterson said.

He pointed out also that "with no reserve fund in sight to reduce the debt" created under the

social security program, "the burden being passed on to future generations is permanent. It is not something that will somehow work itself out, or go away; it is not an actuarial fantasy."

Peterson said that adding medical care to the Social Security System for the present aged would alter the original concept that each person must contribute for a minimum period of time before he is entitled to benefits.

Furthermore, he said, under the Administration social security program, or similar proposals, medical care would add between \$20 and \$30 billion to "the permanent social security debt on which future generations and their employers would need to pay interest forever."

Peterson said the main purpose of his article was to "show that there are excellent reasons for grave concern as to the probable ultimate effects of continued distortion and misrepresentation by interpreters of the Social Security Act, by statements of inadequately informed members of Congress and even by publications of the Social Security Administration itself."

Another purpose, he said, was to "set the record straight by portraying an accurate picture of the financing mechanism as now operating and by exposing the distortion and misrepresentation, no matter what its origin."

He said that when the American people finally learn that social security financing is "distinctly different" from voluntary private insurance with which it is compared, "a rude awakening may well occur, one which could have important political and economic consequences."

"Will the youngsters of the future protest what the oldsters of this generation have voted for themselves? During the decade ahead, will we oldsters, as we seek to enjoy our social security benefits, hear a rising clamor of unfairness — a din of inequity?"

From AMA "News Release," April 7, 1961

CAMELBACK HOSPITAL EARNS JOINT COMMISSION ACCREDITATION

Camelback Hospital in Phoenix was recently granted full approval by the Joint Commission on Accreditation of Hospitals. Formal announcement was made by Kenneth B. Babcock, M.D.,

Director of the Joint Commission.

Similarly, full approval has also been granted the hospital by the American Psychiatric Association. Only 39 hospitals in the United States have been awarded full approval by the American Psychiatric Association.

Medical Director at Camelback Hospital is Dr. Otto L. Bendheim, M.D., F.A.P.A.

Representing the Joint Commission during the inspection was David C. Gaede, M.D., Central Inspection Board of the American Psychiatric Association.

ACUTE IRON POISONING

The Boston Poison Information Center and the Children's Hospital Medical Center recently reported a case in which a one-year-old girl was fed 40 ferrous sulfate tablets (total of 12 grams) by a 2-year-old brother.(1) Within 2 hours the child was taken to the emergency room in a cyanotic state, unresponsive, and in shock. Her stomach was evacuated by lavage with a sodium bicarbonate solution and exchange transfusion was instituted. Despite these measures the victim died 5 hours after ingestion of the iron tablets.

Although iron preparations are considered to have a relatively wide margin of safety, the above case serves to emphasize the serious consequences of acute poisoning from the ingestion of large doses. The extensive use of iron preparations, particularly ferrous sulfate, for the treatment of anemia in recent years has increased the opportunity for accidental iron poisoning. The colored sugar-coating of the tablets give them the appearance of candy and make them particularly attractive to children. The signs and symptoms of iron poisoning are chiefly associated with gastrointestinal irritation and necrosis, and shock; they also include cyanosis, drowsiness, hematemesis, tarry stools, and cardiovascular collapse. The shock syndrome has been attributed to the excess production of ferritin(2) and to local tissue damage.(3)

Three critical phases in iron poisoning may be observed: (1) an early phase of acute shock that occurs within a few hours after poisoning, (2) a recurrent phase that appears one to two

days after poisoning, and (3) occasionally a late phase of pyloric stenosis. Death may occur after apparent recovery. The exact cause of death in iron poisoning is not clear. Fatality has occurred from the ingestion of 40 to 1,600 mg. of ferrous sulfate per kilogram of body weight.(3)

The treatment for iron poisoning is mainly symptomatic. The A.M.A. Committee on Toxicology(3) directs that milk should be given immediately and vomiting induced. Gastric lavage should be performed with the use of a 5% aqueous solution of monosodium phosphate or disodium phosphate. In the case of children 1 or 2 years old, 2 or 3 ounces of the solution should be left in the stomach and proportionally greater amounts in older patients. Bismuth subcarbonate, 200 mg, may be administered every four hours to young children. Dehydration should be corrected by the intravenous infusion of 5% glucose in saline solution. If shock is severe, transfusion with plasma or whole blood should be instituted. Consideration may be given to the intravenous injection of edathamil calcium disodium (Calcium Disodium Versenate) and oxygen should be administered if needed. Exchange transfusion has proven useful in severe poisoning and may be employed. Antibiotics should be administered as prophylaxis against pneumonia and other intercurrent infections. Dimercaprol (BAL) should not be employed because it forms a toxic complex with iron.(2)

In view of the common use of iron preparations and in view of the grave consequences associated with the ingestion of massive amounts of ferrous sulfate or similar drugs, the Arizona Poisoning Control Information Center urges physicians and pharmacists to warn patients to keep these prescriptions out of reach of children.

ACUTE TOXICITY OF PSYCHOPHARMACOLOGIC DRUGS

Information on the acute toxicity of psychopharmacologic drugs in humans has recently been summarized and published by the National Clearinghouse for Poison Control Centers.(4) This information is based on 280 cases of accidental ingestion and overdose involving "tranquilizer" agents reported by 60 poison control centers over a two-year period. Children younger than five years of age were involved in 62.2% of all reported incidents, and over one-fourth of these children had toxic manifestations.

Varying degrees of central nervous system depression, hypotension, convulsion and extrapyramidal-tract motor activity were reported following ingestion of phenothiazine derivatives. The extrapyramidal-tract activity, which included muscle spasms, rigidity, convulsive twitching, tremor, oculogyric crises, was reported after prochlorperazine and perphenazine. The latter toxic effect followed single ingestion of these drugs in amounts ranging from 5 to 36 times the usual therapeutic dose.

The symptoms found most frequently after ingestion of single, larger than therapeutic, doses of the rauwolfia derivatives were mild central nervous system depression (drowsiness, lethargy, and stupor) and flushing. No serious toxic manifestations were reported following ingestion of single doses of these drugs.

Mild central nervous system depression, coma and hypotension were reported most frequently following meprobamate ingestion. Mild depression was also noted in a few cases involving benactyzine, phenaglycodal and hydroxyzine.

The report from the National Clearinghouse for Poison Control Centers also presents suggestions for the management of overdose from these psychopharmacologic agents. Evacuation of the stomach as soon as possible after ingestion is recommended. Gastric lavage may be the preferred method for emptying the stomach following ingestion of the phenothiazine derivatives. Attempts to induce emesis may be unsuccessful, because of the anti-emetic action of these drugs.(4)

There are no specific antidotes for the treatment of poisoning from the psychopharmacologic agents. Hence, symptomatic and supportive therapy is employed. In cases of coma, it is recommended that treatment be directed toward maintenance of adequate pulmonary ventilation, adequate circulation, fluid and electrolyte balance and nutrition of the patient. Levarterenol is suggested for the treatment of phenothiazine-induced hypotension.(4)

Blumberg and co-workers(3) suggest the use of whole blood, plasma or plasma expanders in the treatment of hypotension in severe meprobamate intoxication. On the other hand, Ferguson and co-workers(6) recommend the use of vasopressor agents, such as metaraminol bitartrate or phenylephrine in the treatment of meprobamate-induced hypotension.

It is suggested that extracorporeal hemodialysis or exchange transfusion may be useful in the treatment of selected cases of severe meprobamate poisoning. In the case of severe chlorpromazine intoxication, exchange transfusions may be preferred to dialysis, since the drug is tightly bound to circulating plasma proteins.(4)

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MEDICAL COURT CASES

by Howard Newcomb Morse
Counsellor at Law of the
Supreme Court of the
United States of America

Lashley vs. Koerber
District Court of Appeal of California
150 P. 2d 272

Mrs. Thelma L. Lashley injured her right ring finger on August 30th while adjusting a folding bed. It was the Saturday before Labor Day, and she was unable to get in touch with Dr. George E. Koerber, a physician and surgeon, until the following Tuesday morning, September 2nd. In the meantime, pursuant to advice given by the person answering the physician's telephone, she soaked the finger in hot epsom salts.

On Monday, the day before she saw the phy-

sician, she went to the Highland Hospital and was told that she was doing all she could for the finger until she saw her physician. On Tuesday morning she met the physician at his office, and he diagnosed the injury as a fracture, but her hand was so swollen he could do nothing with it that day, and he told her to continue soaking it until Thursday, and that he believed it would then be possible to put it in splints.

During that visit she asked him if he did not want an x-ray taken and he replied that it would not be necessary. When she returned on Thursday the finger was still so swollen and crooked that it could not be manipulated and while it was in that condition he put it in splints. Before placing the finger in splints he put the finger in as full extension as possible. For splints he used several applicator sticks bound together with adhesive tape.

He changed the splints every few days. On several of those visits to his office she asked him if he did not want to x-ray the finger and he said it was not necessary. After some weeks the finger was still swollen and crooked and on October 25th, of her own volition, she called on a Dr. Stein in Albany, California, and had the finger x-rayed. The next month she returned to Dr. Koerber and told him about the x-ray, but did not show it to him. At that time they discussed an operation but the physician said it would not do any good to "rush the operation." He said that later on he would operate if she had an x-ray taken and at that time he believed the operation was advisable.

On January 2nd of the following year, she again called on him. She was accompanied by her husband. On that visit they discussed the matter of the operation, but he then told them that before he could operate it would be necessary for him to have another x-ray. He gave her the address of the place to have it taken. She had the x-ray taken, and it was sent to him. Two days later she returned to his office and at that time he told her that according to the x-ray he could not operate on the finger, that he would rather have an orthopedic specialist see it, and he requested her to take the x-ray to a Dr. Barnard.

Dr. Barnard did not operate, but put tape on the finger, and later she returned to see Dr. Koerber. When she returned to him she had taken off the tape put on by Dr. Barnard be-

cause she said it was uncomfortable. Dr. Koerber told her if she was not going to follow the treatment ordered for her by Dr. Barnard there was nothing further he could do for her.

The report accompanying the x-ray taken in January stated that it showed a fracture of the base of the terminal phalanx whose shaft was markedly displaced in the volar direction. In this connection Dr. Koerber explained that a chip of the bone to which a tendon was attached, had been broken off, and that the tendon had pulled the chip out of position; and that arthritis in the joint had prevented the chip from uniting to the bone.

Mrs. Lashley brought an action in the Superior Court of Alameda County, California, against Dr. Koerber to recover damages for injuries resulting from alleged malpractice. She claimed that he did not exercise proper care and skill in ascertaining the true condition of the fracture and in the treatment thereof. She further contended that because of such failure the terminal phalanx of the finger became permanently crooked, which greatly interfered with her ability to follow her usual employment as a waitress. The main ground upon which she based her claim of negligence was that he failed to have x-rays taken of the finger to determine the proper healing position.

After she had testified concerning the manner in which the finger had been treated and as to the conversations she claimed took place between herself and the physician on the several visits she made to his office, the physician was called as a witness. He testified that if an x-ray had been taken when she was first injured it would only have confirmed his diagnosis; that it was not necessary to take an x-ray because he knew from the clinical examination that she had fractured the terminal phalanx.

Continuing, he testified that if an x-ray had been taken at any time up to the first of October, "The treatment would have been the same. X-ray is simply a form of diagnosis, it is not a treatment in itself. I knew there was a chip fracture at the base of that phalanx. I knew the finger had to be splinted in full extension, and simply having taken an x-ray would have perhaps added some slight confirmation to what I did but it would not have changed what I did in the slightest, nor would it have changed the eventual result."

He also testified that he suspected she had a

tendency toward arthritis, and that the x-ray taken in January showed arthritis present, but that even if an x-ray had shown acute arthritis the treatment would not have been any different. He also testified that the treatment given her was such as was generally given by physicians and surgeons of good repute in that community, and that seven out of eight physicians with whom he had discussed the matter said it was not their practice to always demand an x-ray in treating fractures.

The only other witness she produced was her husband, who related one of the conversations had between his wife and the physician. She then rested her case, whereupon the physician moved for a nonsuit (that her case be dismissed) on the ground that she had produced no expert testimony to show that his treatment of the finger was not in accordance with the usual practice or that the failure to have an x-ray taken in treating an injury of this kind constituted negligence.

After hearing the arguments on the motion the court expressed the opinion that in the absence of expert testimony a case of negligence legally sufficient to go to the jury had not been made out, adding that if she desired to supply such

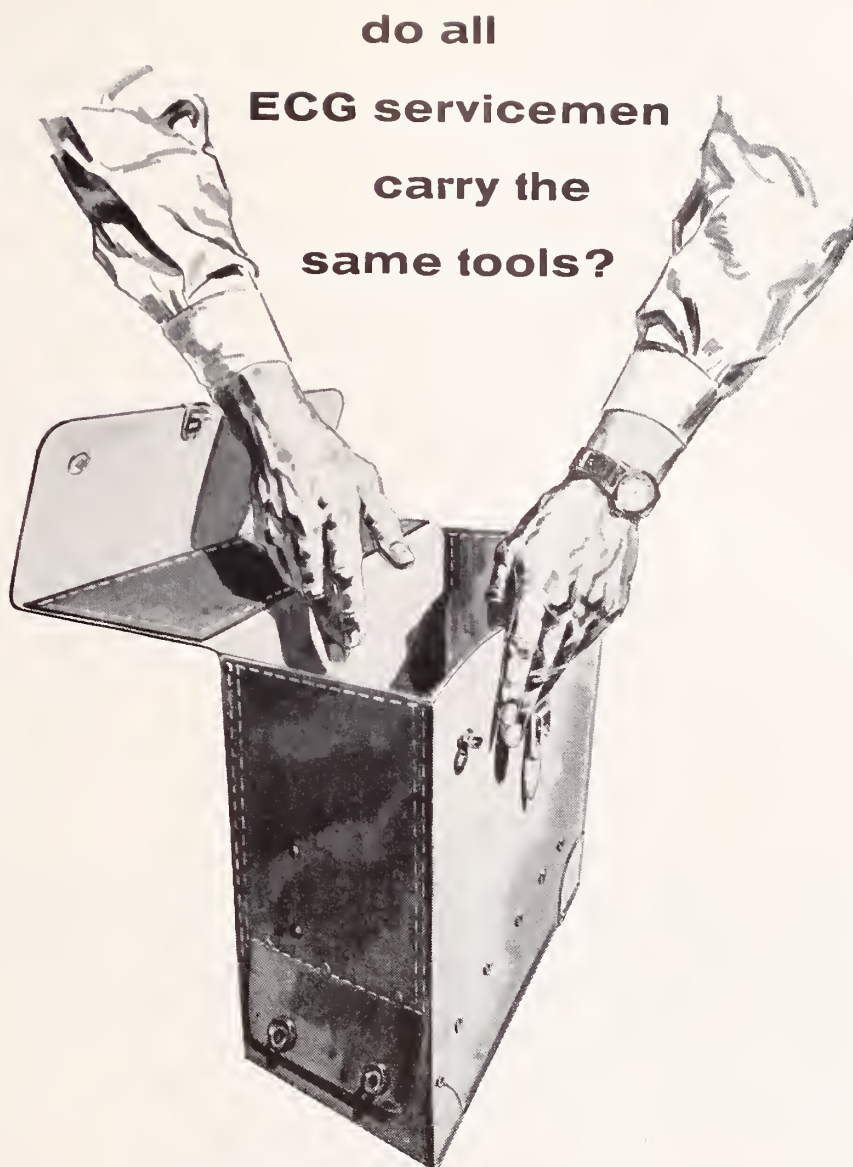
testimony she would be permitted to do so, otherwise the court would have to grant the motion. Her counsel replied that he had no expert testimony, whereupon the motion for nonsuit was granted. From the judgment entered thereon she appealed.

The District Court of Appeal of California affirmed the decision of the court below. She again appealed, and the Supreme Court of California reversed the decision of the District Court of Appeal on the grounds that expert testimony was not necessary in order for her to establish her case. The Supreme Court declared: "When the defendant (the physician) finally did have an x-ray picture taken it showed, according to the report of the roentgenologist, a 'fracture of the base of the terminal phalanx whose shaft is *markedly displaced*.' (Italics added.) It does not require the testimony of an expert, under the conditions shown here, to support the conclusion that a piece of bone which is markedly displayed from the larger bone from which it has been detached is not in proper healing position." Accordingly, the Supreme Court held that she had adduced sufficient evidence of his negligence for the case to have been submitted to the jury.

MEDICAL JOURNAL

Many photographs have been received for the Illustrated Membership Roster to be published in *Arizona Medicine*. If you have not forwarded yours, would you please do so?

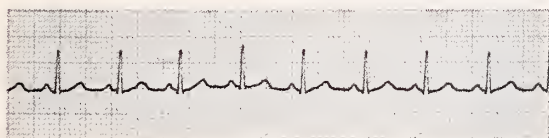
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Reprints

Distribution Of *Coccidioides Immites* Determined By Testing Cattle

Keith T. Maddy, D.V.M., M.P.H.

H. Gilbert Crecelius, Ph.D.

Richard G. Cornell, Ph.D.

Comparison of the data for cattle with those for persons reveals that cattle become infected at about twice the rate for persons living in the same area. A previous Arizona study revealed the tendency for the prevalence of positive skin test reactions of persons to level off after 12 years of exposure. In cattle, it was found that after 6 years of exposure there was also a marked leveling off. Because of this, all animals beyond 6 years of age were eliminated from this study. This leveling off is no doubt related to the reversions of positives to negatives. The annual conversion rates from negative to positive in a previous study on human beings, as calculated by the Manos method, was a little less than half that found for the cattle in this study when the rates were calculated by the same method.

The annual rate of conversions to positives among cattle is almost identical to that found in skin tests of persons in Maricopa, Pima, and Pinal Counties during the first year of exposure. Therefore, the rates for cattle are indicative of the actual percent of a susceptible human popu-

lation that becomes infected per year for each county.

Other studies by Maddy on cattle in these same counties in which cattle were coccidioidin tested every few months revealed that the conversion rates to positive were about double those indicated by the annual conversion rates for cattle in this study, using the Manos method. No doubt, this also reflects the loss of positives among infected cattle over a period of a few years.

Comparison of data for persons and cattle also indicates that the prevalence of coccidioidin sensitivity of cattle 5 and 6 years of age is about the same as that found when persons with 12 years or more of exposure in the endemic area are tested.

This study revealed for the first time that the low altitude areas of Yavapai and Mohave Counties and additional areas of Gila County are endemic for coccidioidomycosis. The absence of test results positive only to histoplasmin and haplomycin indicated that all reactions to these two test agents were cross reactions caused by *C. immitis* infections in cattle. Therefore, it is

believed that the cattle tested in this study were not infected with *H. capsulatum* or *Haplosporangium parvum*.

In this study fomites, such as feeds raised in endemic areas, did not appear to be good vehicles for transmission of *C. immitis* to cattle in nonendemic areas fed these feeds.

We believe this study has served as an example of how an animal with a limited home range, that also acquires an infection common to man, can be used to delineate the geographic distribution of the infective agent. For instance, if a good blastomycin could be produced, perhaps a skin test survey of home-raised cattle in selected areas of central and eastern United States would also reveal useful ecologic data on blastomycosis.

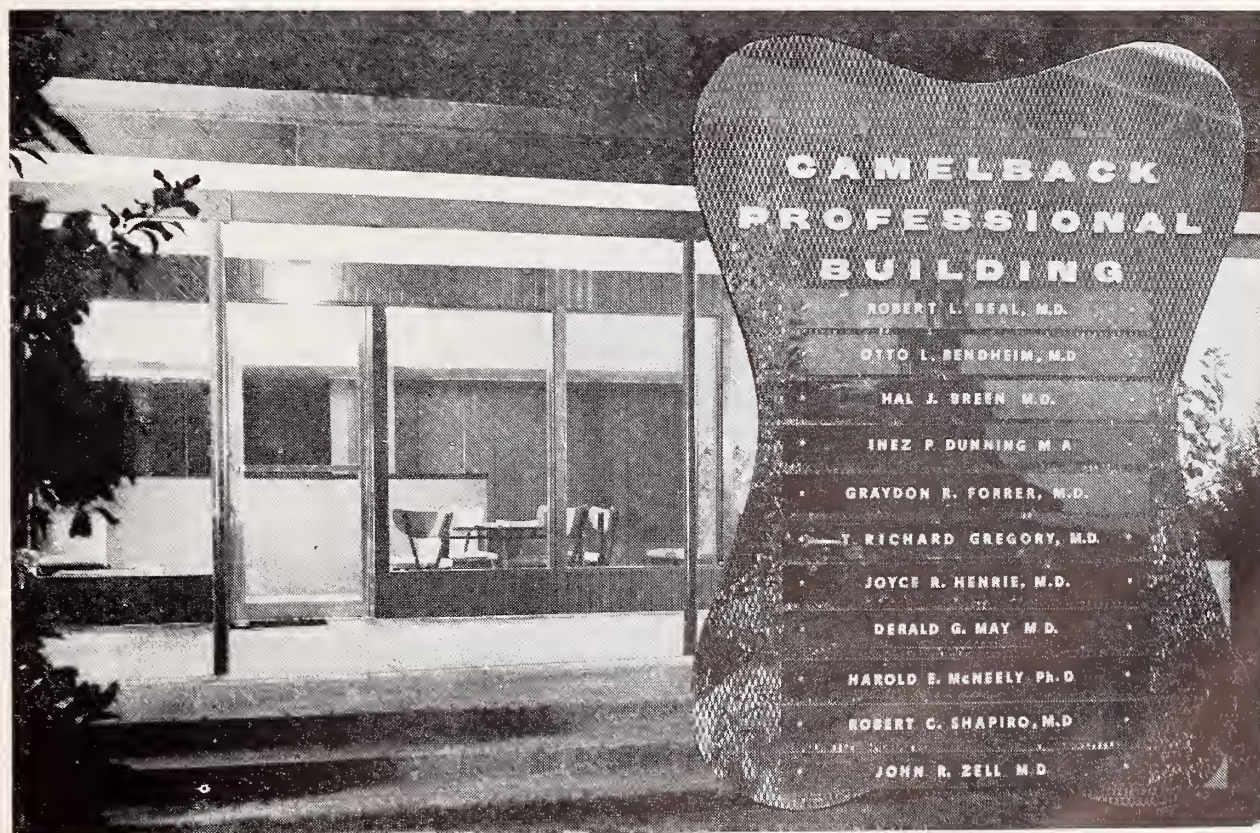
SUMMARY

From various areas of each county of Arizona, 11,643 home-raised cattle 1-6 years of age were

coccidioidin tested and 2,859, or 24.6 percent, were found to be positive. Whereas previous human skin test surveys have given only indefinite indications of the extent of the endemic areas, this study revealed rather definite boundaries and the relative infectivity of various parts of the endemic area of the State. The endemic areas were found to be practically co-terminous with the Lower Sonoran Life Zone.

The low altitude areas of Yavapai and Mohave Counties and additional areas of Gila County were established as endemic areas for the first time, and several areas of the State of above 5,500 feet altitude, previously in a suspect classification, were found to be noninfective to cattle.

The annual conversion rates for cattle, calculated by the Manos method, were found to be almost identical with the actual human infection rate per year in those counties where this relationship was studied.



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References: 1. Smigel, J. O., *et al.*: J. Am. Geriatrics Soc. 7:61 (Jan.) 1959. 2. Shalowitz, M.: Geriatrics 11:312 (July) 1956.

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Complete menus for 10 days enable you to prescribe diets which are appetizing, nutritiously adequate and which can exert cholesterol depressant activity. Special attention has been given to constructing the menu patterns so that they adhere as closely as permissible to the patient's normal eating habits.

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Weight control is achieved as each day's menu is given at 3 calorie levels—1200, 1800 and 2600 calories. You prescribe the level most desirable and modify as desired.

Variety and appetite appeal for patient are built into the menu plan to an extent not previously accomplished. Alternate choices for main dishes minimize monotony, encourage the patient to follow closely the menu plan you specify.

Complete recipes—65 in all—are included to assure that the specified menus provide prescribed levels of calories, the pre-determined ratio of poly-unsaturated to saturated fat, plus essential nutrients.

Dietary fat is controlled so that approximately 36% of the total calories are derived from fat and at least 40% of these fat calories are from poly-unsaturated components (linoleates) as found in pure vegetable oil. The replacement of saturated dietary fat by this percentage of poly-unsaturated fat has been found in clinical studies most effective in the reduction of serum cholesterol and in its maintenance at desirable levels. More liberal menus are provided for maintenance after the patient's progress indicates that desired therapeutic results have been accomplished.

Family meal preparation is simplified. The menus are planned around favorite foods having wide appetite appeal for all members of the household. Patients can entertain in comfort—enjoy cakes, cookies, snacks, prepared with recipes which meet medical requirements.

A high degree of satiety is achieved even at the lower calorie levels, because Wesson provides an unexcelled source of concentrated, slow-burning food energy.

Adaptable for use with diabetics. Carbohydrates have been calculated to fall within the acceptable range for patients to whom a diet planned for diabetes is important. Calories, which must be supplied from fat when the carbohydrate intake is limited, are provided by desirable poly-unsaturated vegetable oil.

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Your Cholesterol Depressant Diet Book

Menu plan for

Mrs. John Dae
DATE Feb. 1961

JOSEPH ROE

M.D.



1200 CALORIES		1200 CALORIES	
breakfast	1/2 cup granulated sweetener *Egg Coffee or tea with 3 tbsps. skim milk TOTAL 320	lunch	4 oz. tomato juice 2 oz. drained tuna fish, surrounded with raw vegetables with 1 tbsp. French dressing 1 1/2 water Coffee or tea with 3 tbsps. skim milk TOTAL 200
snack	(May be had at mid-afternoon or evening) 8 oz. skim milk TOTAL 90	dinner	*2/3 portion Pickled Beets and Cucumber Salad *1/2 Baked Chicken Breast *Baked Asparagus 1 canned tomato soup Coffee or tea with 3 tbsps. skim milk TOTAL 495
snack	(May be had at mid-morning or mid-afternoon) Coffee or tea with 3 tbsps. skim milk, 1 tsp. sugar TOTAL 30	snack	*Pickled Beets and Cucumber Salad *Baked Asparagus *Baked Potatoes *Orange Pearls Coffee or tea with 3 tbsps. skim milk, 1 tsp. sugar TOTAL 300
snack	(May be had at mid-morning or mid-afternoon) Coffee or tea with 3 tbsps. skim milk, 1 tsp. sugar TOTAL 30	snack	Apple juice or glass of dry wine *Pickled Beets and Cucumber Salad *Baked Chicken Breast *Baked Asparagus *Orange Pearls Coffee or tea with 3 tbsps. skim milk, 1 tsp. sugar TOTAL 1210

Menu 1
lunch substitution

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Future Medical Meetings

Annual Meeting American College of Chest Physicians

The 27th Annual Meeting of the American College of Chest Physicians will be held at the Commodore Hotel, New York City, Thursday, June 22 through Monday, June 26, 1961. Scientific sessions will open Saturday, June 24 and will continue through Monday, June 26.

A joint session with the Section on Diseases of the Chest of the American Medical Association will be held at the Coliseum, Monday, June 26. This will be the first joint meeting in the history of the two societies.

The popular Fireside Conferences, also to be a joint session sponsored by both the AMA and the College, will be held at the Commodore Hotel, Monday evening, June 26. The following physicians from Arizona will participate in these Firesides: Drs. Howell S. Randolph, Phoenix; Andre J. Bruwer, Orin J. Farness, Solomon Netzer and Henry J. Stanford, Tucson.

REGIONAL MEETINGS

Summer and Early Autumn, 1961

June 19-21, 1961

Survey of Human Genetics

University of Colorado School of Medicine
Denver, Colorado

June 28-July 1, 1961

69th Annual Meeting

Idaho State Medical Association
Sun Valley, Idaho

July 10-13, 1961

University of Colorado Medical Center
Course on Ophthalmology
Estes Park, Colorado

July 12-13, 1961

15th Annual Rocky Mountain
Cancer Conference
Denver, Colorado

July 17-20, 1961

New Mexico Chapter, AAGP
Ruidoso, New Mexico

July 24-28, 1961

American College of Chest Physicians
Course on Cardiopulmonary Problems
Denver, Colorado

July 27-29, 1961

University of Colorado Medical Center
Dermatology for General Practitioners
Denver, Colorado

August 10-12, 1961

Rocky Mountain Radiological Society
Denver, Colorado

August 21-25, 1961

Colorado University Medical School
Pediatrics
Estes Park, Colorado

August 23-26, 1961

Nevada State Medical Association
and Reno Surgical Society

September 13-15, 1961

Utah State Medical Association and
Rocky Mountain Medical Conference
Salt Lake City, Utah

September 18-21, 1961

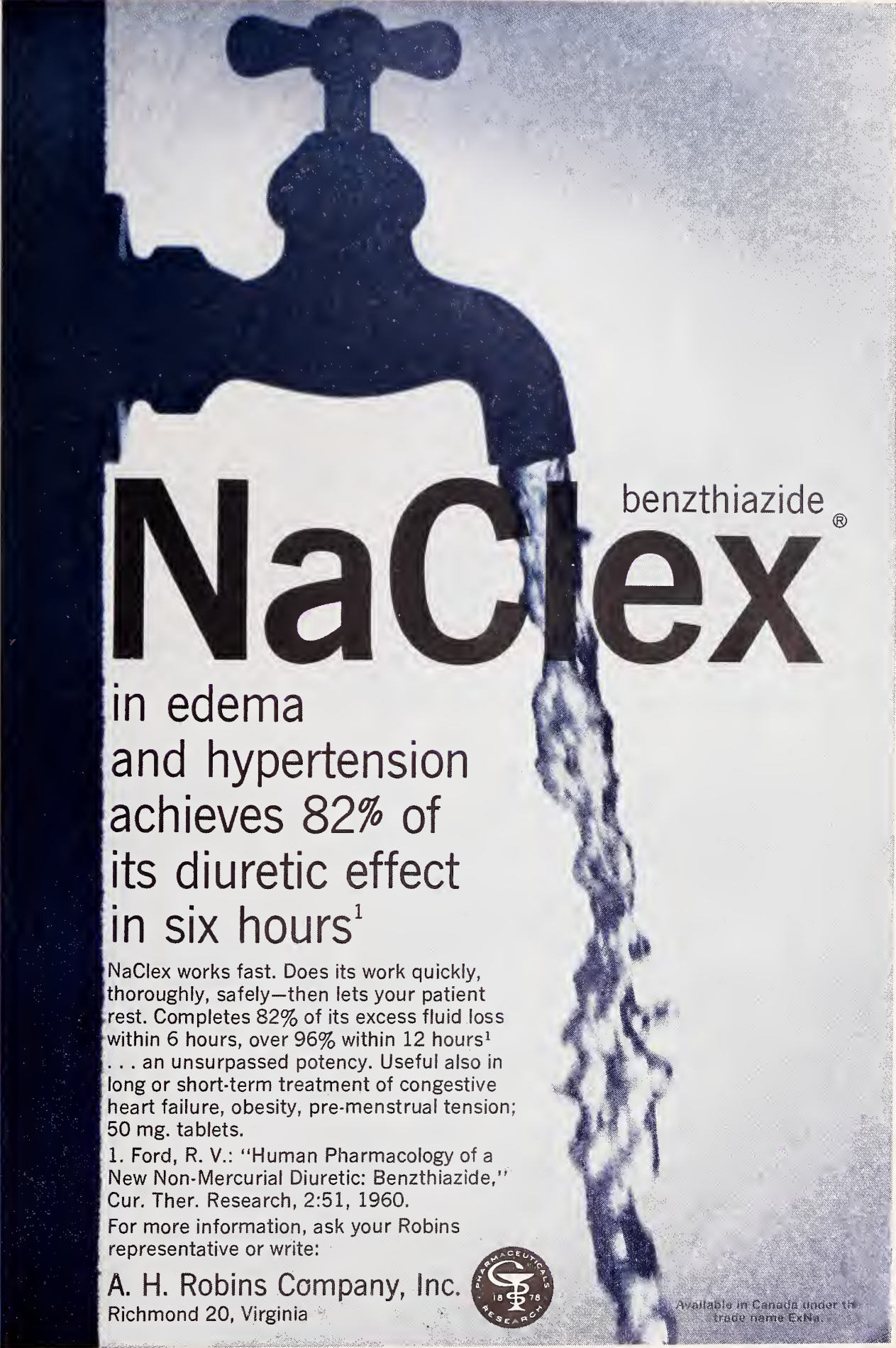
Wyoming State Medical Society
Moran, Wyoming

September 22-23, 1961

Idaho Academy of General Practice
Boise, Idaho

September 21-24, 1961

American Psychiatric Association
Fourth Western Divisional Meeting
Salt Lake City, Utah



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1. Ford, R. V.: "Human Pharmacology of a New Non-Mercurial Diuretic: Benzthiazide," *Cur. Ther. Research*, 2:51, 1960.

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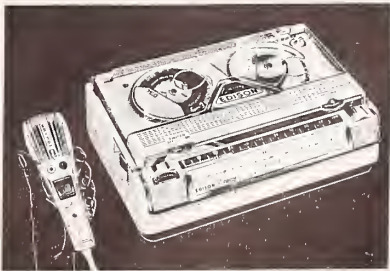
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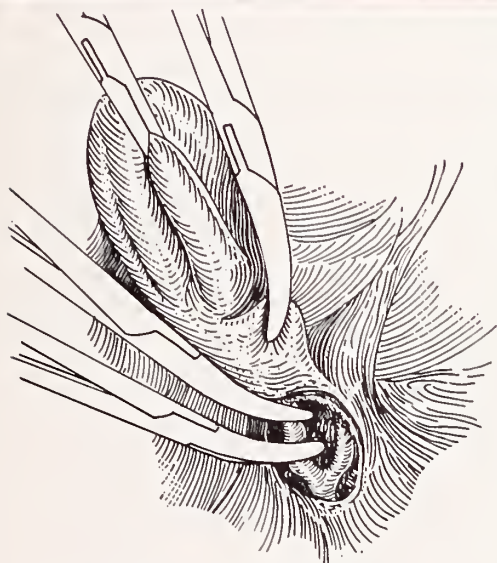
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1. The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953.
2. Brown, G.W.; Tuholski, J.M.; Sauer, L.W.; Minsk, L.D., and Rosenstern, I.: J. Pediat. 56:391 (Mar.) 1960.



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